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Date: 2016-09-08
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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 43885

ALCOHOLIZATION OF MORTON'S NEUROMA UNDER MRI, FLUOROSCOPIC AND NEUROGRAPHIC GUIDANCE

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Morton's neuroma is a common cause of fore foot pain. Surgical excision of an interdigital neuroma show 77%, conservative treatment and injections of steroids, Botulinum Toxin, Phenol and Alcohol show good and excellent results in 71 to 85%. All conservative studies cited used only one diagnostic regimen to localize the Morton's Neuroma before an operative intervention. We wanted to assess outcome of conservative therapy (injection of 70% Alcohol) using three diagnostic regimens (MRI, electroneurography, fluoroscopy) to localize the neuroma in each patient. 13 patients with MRI confirmed Morton neuromas were prospectively enrolled between 2011 and 2015 after power analysis according to the relevant laws using predefined inclusion and exclusion criteria. First using MRI the localization of the Morton's neuroma in relation to the adjacent metatarsal heads was measured. Second, using fluoriscopic guidance, the needle is then positioned according to the measured distances. Third, electroneurographic confirmation and fine adjustments if necessary is done. Fourth, 2.5ml of 70% ethylalcohol are administered and, 5ml of a local anesthetic (2% Xylocain) subsequently. Postoperative regimen consisted of elevation, and ice packs and a single dose of 500mg Mefenamic acid (Parkemed(R)). VAS, AOFAS and a part of the SF 36 were assessed. The mean follow up was 32 months. Significant improvement was seen in all scores. The AOFAS increased from 74,6 to 94,5 and the VAS declined from 7,7 to 1. The part of the SF36 dropped from 8,6 to 3,2. We recommend further long term studies with more patients to assess our method in details.

Date: 2016-09-08
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Abstract no.: 45644

COMPARATIVE STUDY OF TRICORTICAL VERSUS QUADRICORTICAL SYNDESMOSIS FIXATION IN ANKLE FRACTURES: PROSPECTIVE, RANDOMIZED STUDY COMPARING TWO METHODS OF SYNDESMOSIS FIXATION

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Objective: to assess short-term functional results in 2 types of syndesmotic fixation, quadricortical syndesmotic screw fixation with a tricortical screw fixation. Method: 39 patients with closed ankle fractures in which the syndesmosis was found to be unstable. The unstable syndesmoses were fixed with either one cortical screw through both tibial cortices (n=18) or two cortical screws engaging only 1 cortex of the tibia (=21). The quadricortical and the tricortical screws were removed only in the case of discomfort however, all quadricortical screws were removed at 6 month follow up. Results: at the end of three months mean om score was 65.35 for tsf group as compared to 59.58 in qsf group. The overall difference noted in two groups was due to difference in mean value for functional parameter and activities of daily living .at six months there was no significant difference in any parameter of om score. Hence the overall scores were with non significant difference {tsf 76.42and qsf 72.42.at 3 months did was 12.07 in tsf and 9.75 in qsf with significant difference in two groups. The one set of tricortical screws and two quadricortical were removed in patients due to infection. quadricortical group was reoperated in 3 cases for screw removal in case of screw breakage before 6 month follow up. Conclusions: study confirmed that syndesmosis fixation with 2 tricortical screws is safe and improves early function after 6 months, there were no significant differences between the 2 groups in functional score, pain, and dorsiflexion.

Date: 2016-09-08
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Abstract no.: 43878

ADIPOSE-TISSUE STROMAL VASCULAR FOR THE TREATMENT OF ACHILLES TENDINOPATHY: A RANDOMIZED PROSPECTIVE CLINICAL TRIAL

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Introduction: Achilles tendinopathy consists in the development of pain and inflammation with progression to degeneration of tendon matrix. Conservative treatment approaches do not provide satisfactory results, although PRP injections have shown to be effective in many cases. The therapeutic effect of adipose-derived mesenchymal stem cells (ASCs), either expanded or used directly within the stromal vascular fraction (SVF), have demonstrated to possess significant anti-inflammatory and immunomodulatory effects. Method: To test this hypothesis, patients affected by non-insertional Achilles tendinopathy (range 18-55 y/o) were prospectively enrolled in this clinical study, and randomly assigned either to single PRP injection group (n=28) or single adipose tissue SVF (n=28) injection group. All patients were assessed clinically pre-operatively and at 15, 30, 60, 120 and 180 days from treatment, using VAS Pain, VISA-A, AOFAS and SF-36 forms. Patients were also evaluated by ultrasound and magnetic resonance before treatment and after 4 and 6 months. Results: At final follow up both patients group showed significantly improvements in all the scores ($p<0.05$). In SVF patients these improvements were faster. At 15 days a significant difference between groups in term of VAS, AOFAS and VISA-A score was observed ($p<0.05$), with better results in the SVF group. After 6 months MR and ultrasounds showed an improvement of clinical signs in both groups, without relevant differences. Conclusions: Both PRP and SVF are safe and effective treatments for Achilles tendinopathy. However, SVF allowed to obtain faster results, thus allowing to consider this treatment for patients requiring to come back to sport earlier.

Date: 2016-09-08
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Abstract no.: 44000

CLINICAL AND RADIOLOGICAL OUTCOME OF TIBIO-TALO-CALCANEAL ARTHRODESIS WITH RETROGRADE INTRAMEDULLARY SIGN NAIL

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Tibiotalocalcaneal arthrodesis is a salvage procedure for hind foot problems that affect both the ankle and subtalar joints. The primary Goal of treatment is to obtain painless, plantigrade foot that fit into shoes. The objective of this study is to determine the clinical and radiological outcome of Tibio-talo-calcaneal arthrodesis with Retrograde Intramedullary SIGN Nail in patients with tibiotalar and subtalar joint pathologies. This was a descriptive case series done at Department of Orthopaedics and Spine Surgery, Ghurki Trust Teaching Hospital, Lahore from September 2012 to May 2015. Total 40 patients underwent Retrograde Ankle Intramedullary SIGN nail. Ankle Pain was assessed on visual analogue scale and tibiotalocalcaneal fusion was assessed on X-ray at 3 months and 6 months. Decrease in pain score of 3 or more on visual analogue scale was taken as improvement in pain. At 6 months 38 patients (95%) had improvement in pain on visual analogue scale and solid fusion on x-ray. 1 patient (2.5%) lost the follow up and 1 patient (2.5%) had non-union with painful ankle joint at 6 months follow up. Retrograde Intramedullary Sign Nail is a good option for ankle and subtalar joint arthrodesis. Early weight bearing can be started. Solid fusion can be achieved in considerable short time.

Date: 2016-09-08
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PERCUTANEOUS AND ULTRASOUND ASSISTED SURGERY FOR ACUTE ACHILLES TEARS

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Introduction: The Achilles tendon is the most often broken one in the human body and its etiology is still poorly known. Frequently this happens to male patients between 30 and 50 years although nowadays due to increasing life expectancy ,life quality and sport activity, the age range is increasing and thus also means patients with associated pathology that cause potential skin problems. The injury is often caused during a sharp effort, and the affected area is located usually 3-6 centimeters above the calcaneal tuberosity, in the tendon area where it has a narrowing and vascularization is more delicate, mainly in the posterior region. Treatment options are controversial and still unclear. Methods: We present here a percutaneous technique performed and assisted by ultrasound, which was conducted in 40 patients with acute Achilles tendon rupture, treated as outpatients, under local anesthesia, with immediate postoperative weight load allowed in walker with wedges and active mobilization exercises Achilles allowed from 3 weeks post- intervention. Results: The results show a smaller diameter calf muscle atrophy similar to the contralateral muscle, a quick back to work and previous sports activities, without skin or infectious problem, with high AOFAS satisfaction rates, supported by MRI Control that is normal, it does not show hypointense tendon areas at the breaking level or alterations as in the open surgery cases.

Date: 2016-09-08
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Abstract no.: 42899

NON-OPERATIVE TREATMENT OF ACUTE COMPLETE RUPTURE OR RE-RUPTURE OF ACHILLES TENDON WITHOUT ULTRASOUND VERIFICATION OF STUMP APPROXIMATION

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The objective of this study was to assess the functional outcome of nonoperative treatment without ultrasound verification of stump approximation for acute Achilles tendon ruptures and re-ruptures. Consecutive 26 patients with acute complete ruptures of the Achilles tendon who received non-operative treatment between May 2006 and January 2015 were included. Diagnosis was made through physical exam and MRI or ultrasound. Two of them had re-rupture: in one case, it occurred during our initial nonoperative treatment, and in the other, it occurred 2 weeks after operation at another center. All patients underwent conservative treatment without ultrasound confirmation of stump approximation. We assessed the Achilles Tendon Total Rupture Score (ATRS), functional ability compared to that before injury, single heel raise (SHR) ability, return-to-work and sports times, and complications. The average follow-up period was 16.3 (range, 6-60) months and the mean ATRS at final follow-up was 93.6 (range, 83-100) and VAS score was 0.4 (range, 0-2). The average return-to-work time was 3.5 (range, 1-6) months. SHR was possible in all patients except one, and 38% (10/26) patients were very satisfied, 58% (15/26) were satisfied, and 4% (1/26) were fair. One patient experienced re-rupture (1/26, 4%). Both patients who received nonoperative treatment for re-rupture had good functional outcomes. Non - operative treatment for acute complete Achilles tendon rupture could yield good results including rerupture cases without ultrasound confirmation of stump approximation. We suggest that ultrasound verification of stump approximation is not necessary to determine treatment method.

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Abstract no.: 42780

CLINICAL OUTCOMES AND RETURN TO SPORTS IN PATIENTS WITH CHRONIC ACHILLES TENDON RUPTURE AFTER REPAIR WITH SEMITENDINOUS TENDON GRAFT TRANSFER

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Chronic Achilles rupture are relatively uncommon and the aim of management is to reconstruct Achilles tendon to a functional length and achieve normal plantar flexion strength. The purpose is to evaluate the clinical results and return to sport in patients undergoing reconstruction of the Achilles tendon with minimally invasive technique tendon graft augmentation. 8 patients treated for chronic Achilles tendon rupture (more than 30 days from the injury and gap> 6 cm) underwent reconstruction with minimally invasive technique according Maffulli with semitendinosus graft augmentation. Patients were evaluated at a minimum follow-up of 24 months after surgery through The American Orthopaedic Foot and Ankle Society (AOFAS), The Achilles Tendon Total Rupture Scores (ATRS), the calf circumference of the operated limb and the controlateral and the eventual return to sports activity carried out before the trauma. The minimum follow-up was 24 months after surgery. The mean age at operation was 50.5 years. Patients were 5 men and 3 women. No patient reported complications or re-ruptures. The average AOFAS was 92, while the average ATRS 87. The average size of the calf operated was 37.5cm, while the controlateral 38.5cm. All patients returned to their daily activities, and 6 out of 8 patients have returned to sports activities prior to the accident. The treatment of Achilles tendon rupture with minimally invasive technique with semitendinosus graft augmentation can be considered safe, in fact no complications have been reported, and allows patients to come back to their sports activity.

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TREATMENT OUTCOMES OF BUTTRESS PLATING FOR POSTERIOR PILON FRACTURES

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Objective: The purpose of current study was to retrospectively analyze the clinical outcomes of buttress plate treatment of posterior pilon fractures. Methods: Between January 2005 and December 2009, 16 patients with posterior pilon fractures underwent buttress plate fixation. There were 11 males and 5 females and the mean age was 37.6 years (range, 23 to 62 years). Preoperative radiographs, CT scans and three dimensional reconstructions were used to evaluate the fracture patterns. On the basis of the extension of the fracture lines presented on the CT scans, a posterolateral approach or a combination of both posterolateral and posteromedial approaches were used to reduce and fixate the posterior malleolar fragments. Clinical and radiographic examinations were used for postoperative follow-up. The AOFAS ankle-hindfoot score and the Visual Analogue Scale (VAS) were used to evaluate the functional outcomes. Results: According to the CT scan images, the posterior pilon fractures were classified into 3 types. 14 patients were available for follow-up. The mean time of follow-up was 37.6 months (range, 16 to 52 months). The mean AOFAS score was 86.4 points (range, 70 to 98 points), and the mean VAS score was 1.4 points (range, 0 to 3 points). One patient was found with ankle joint swelling and long term walking discomfort at 2-year follow-up. Other patients received favorable functional outcomes. No hardware failure occurred. Conclusions: The clinical outcomes of buttress plate treatment of posterior pilon fractures were satisfactory. Buttress plating availed the patients to return to earlier weight-bearing and functional exercises.

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Abstract no.: 43973

INCIDENCE AND UNION RATE OF AVULSION FRACTURE AT THE TIP OF THE FIBULA FOR ANKLE SPRAIN IN CHILDREN: A PROSPECTIVE STUDY

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Introduction: The purposes of this study were to 1)clarify the incidence of avulsion fracture at the tip of the fibula for ankle sprain in children, 2)assess the utility of the ATFL view proposed by Haraguchi for detection of the avulsion fracture, and 3)clarify the union rate of the fracture. Methods: Patients with a first-time inversion sprain, and aged from 6 to 12 years were prospectively examined. Patients underwent anteroposterior and lateral radiographs, and the ATFL view at the first visit, and incidence of avulsion fracture was assessed. Sensitivity to fracture detection for the anteroposterior and lateral view, as well as for the ATFL view, was also evaluated. Patients with avulsion fracture underwent follow-up radiographs after 8 weeks, and the union rate of the avulsion fracture was assessed. Treatment was not standardized, and ranged from elastic bandage to non-weight-bearing cast for 6 weeks. Results: 146 ankles of 145 patients (54 female and 91 male) with a mean age of 8.7 years were included. Overall incidence of avulsion fracture was 62% (91/146 ankles). Sensitivity to fracture detection was 0.98 for the AFTL view, however it was only 0.46 for the anteroposterior and lateral views. Of the 91 ankles with fractures, 74 ankles underwent radiographs at 8 weeks. The overall union rate was 20% (15/74 ankles). Conclusion: Avulsion fracture at the tip of the fibula was surprisingly common after ankle sprain in children, and the ATFL view is necessary to detect the avulsion fracture. Only 20% of the fractures united after 8 weeks.

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Abstract no.: 44471

CHOICES OF IMPLANT IN MEDIAL MALLEOLAR FRACTURE - TEN-YEAR-EXPERIENCE IN VGHTPE AND LITERATURE REVIEW

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Medial malleolar fracture is traditionally treated with fixation with screws, which depend on facilities and surgeons' preferences. It is still debated that how many screws required to purchase adequate fixation. We retrospectively reviewed our cases with medial malleolar fracture followed by open reduction and internal fixation with screws from 2002 to 2011. There were 158 patients, whose mean age was 47-year-old. Inclusion criteria were patient who had medial malleolar fracture and underwent fixation with screws and post-operation follow up at least for 12 months. Choices of implants, associated injury and number of screws were recorded. Fracture union was estimated via X-ray anterior-posterior and lateral view. In our patients, 96 operations were fixed with 1 screw and 65 operations were fixed with 2 screws. Malleolar screw, cancellous screw and cannulated screw were used. Forty-one patients had medial malleolar fracture only, and 117 patients had associated injury, such as lateral malleolar fracture or syndesmotic injury. Three patients suffered from loss of reduction and underwent revision surgery. Twenty patients had noticeable fracture gap on X-ray in four months. In our research, number of screws contributed most on post-operational union. Two-screw group had less significant fracture gap in 4-month postoperatively. Implant selection, such as malleolar, cannulated or cancellous screw had similar bone union rate. Associated injury or age or gender are insignificant to union rates. Number of screws is the most important implant factor of medial malleolar fixation. Either choices of implants or associated injury had no significant differences.

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Abstract no.: 45662

RELIABILITY OF TWO SMARTPHONE APPLICATIONS FOR RADIOGRAPHIC MEASUREMENTS OF HALLUX VALGUS ANGLES

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The objective of this study was to assess the reliability of two smartphone applications in comparison to traditional goniometer technique for measurement of radiographic angles in hallux valgus and the time spent for analysis with the different methods. Radiographs of 31 patients (52 feet) with a diagnosis of hallux valgus were analyzed. Four observers, 2 with over 10 years' experience in foot and ankle surgery and 2 in training surgeons, measured the hallux valgus angle (HVA) and intermetatarsal angle (IMA) using a manual goniometer technique and two smartphone applications (Hallux Angles and iPinPoint). The interobserver and intermethod reliability was estimated using intraclass correlation coefficients (ICCs) and the time spent for measurement of the angles between the three methods was compared using the Friedman test. A very good or good interobserver reliability was found among the four observers measuring HVA and IMA using the goniometer (respectively, ICC = 0.913 and ICC = 0.821) and iPinPoint (respectively, ICC = 0.866 and ICC = 0.638). Using Hallux Angles a very good interobserver reliability was found for measurements of HVA (ICC = 0.962) and IMA (ICC = 0.935) only among the more experienced observers. The time spent for measurements was significantly shorter for measurements using both smartphones applications in comparison to the goniometer method. One smartphone application (iPinPoint) was reliable for measurements of hallux valgus angles either by experienced or non-experienced observers. The use of these tools may save time in the evaluation of radiographic angles in hallux valgus.

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Abstract no.: 45316

IMPLEMENTATION OF A DEDICATED CLUBFOOT CLINIC SIGNIFICANTLY DECREASES THE OCCURRENCE OF MAJOR UNPLANNED CLUBFOOT SURGERY: A QUALITY IMPROVEMENT INITIATIVE

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Introduction: Our institution recently implemented a quality improvement initiative (QI) in response to the high proportion of subjects requiring major clubfoot surgery. The QI intervention was focused on establishing a dedicated clubfoot clinic and decreasing the number of casts, providers applying casts, and cast related complications. The purpose of this study was to compare the occurrence of major revision surgery before and after the QI intervention. Methods: Data was retrospectively collected from feet that underwent treatment of isolated clubfoot before (January 2003 to December 2007, N=131 feet) and after (March 2012 to November 2013, N=57 feet) implementation of a dedicated clubfoot program. Variables related to demographics, treatment patterns, and the occurrence of unplanned major surgery within the first 2 years of casting was collected. A multi-variable generalized logistic regression analysis was used to test the null hypothesis of no difference in the occurrence of major surgery between the two time periods. Results: The occurrence of major surgery was decreased in the post- (2%) versus the pre-clubfoot program (34%, Odds Ratio: 0.72, 95% CI: 0.64-0.81, p <0.0001) time periods. There was also a decrease in the number of casts per foot (8 vs. 6, p=0.2529), proportion of feet treated by multiple providers (27% vs. 9%, p=0.0005, and the occurrence of cast related complications (37% vs. 20%, p=0.1892). Conclusion: The implementation of a dedicated clubfoot program was associated with a decrease in the number of providers, average number of casts, and most importantly, a decrease in the occurrence of major clubfoot surgery.

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Abstract no.: 44645

MINIMALLY INVASIVE TECHNIQUES ASSOCIATED WITH MIDFOOT FUSION BOLTS IN CHARCOT FOOT: CASE SERIES AND BIOMECHANICAL RESULTS

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Introduction: In chronic Charcot diabetic foot reconstruction, surgeons have used several constructs in an attempt to resolve various pathologies. Material and Method: We are currently following a clinical study on 7 patients operated with the so-called “beaming technique”, using at least 3 intramedullary 6.5 mm solid screws (MFB – Midfoot Fusion Bolts) in an attempt to reinforce the bone to prevent further collapse, associated with different midfoot arthrodesis techniques (including percutaneous). Radiographic and CT scans measurements were recorded preoperatively and at follow-up. We had 2 patients that required in the 9 -12 months interval re-interventions with hardware repositioning and debridement; two cases had screw breakage inside the bone. The technique was also biomechanically tested with simulation under FEA – finite elements analysis (ANSYS software) for mechanical stability with maximum displacement and deformation of bone components compared with plating techniques. Results showed a good stiffness of the construct with no significant failure load patterns. Discussion: Literature shows us that in many instances, the osteotomies of Charcot patients do not fuse but instead go on to develop nonunion. Even with the three non-unions noted there was no recurrence of deformity at more than 12 months. Most frequent hardware failure was probably related to inadequate fusion. Conclusion: Midfoot Fusion Bolts technique can achieve the stability required by chronic diabetic foot reconstructions but the technique of arthrodesis should be thorough and precise; minimally invasive techniques (percutaneous speed burr) can be of great help.

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Abstract no.: 43206
MIS TECHNIQUE FOR CALCANEAL SHIFT - DOES IT WORK?

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Background: Calcaneal Shift osteotomy is a common procedure that is used for the treatment of hind foot varus or valgus seen in pes cavus and pes planus respectively. Recently a MIS (Minimally Invasive Surgery) technique has been described for performing such procedures with low complication rates. Methods: Thirteen sequential patients were retrospectively reviewed. They received 16 MIS calcaneal shift osteotomies between April 2014 and August 2015.The procedures were all performed by the senior author. We describe our technique for MIS Calcaneal shift osteotomy. Results: Four out of Six MIS lateral calcaneal shift osteotomies, had modified Brostrum repair in addition to the lateral calcaneal shift osteotomy on the same session. Ten were MIS medial calcaneal shift osteotomies. Nine of these were MIS medial calcaneal shift osteotomy in addition to calcaneal lengthening osteotomy on the same session. None needed conversion to open procedure as MIS was adequate to achieve the goal of surgery. None of the patients had infection (requiring readmission), wound breakdown or nerve damage. All the patients had full bone union. Conclusion: MIS Calcaneal shift osteotomy is a useful technique with results equal to open procedure and has advantages of having less soft tissues and skin trauma. MIS calcaneal shift osteotomy has an advantage over open conventional open technique in cases where the skin is under tension like in combined calcaneal lengthening osteotomy. With experience the procedure can be faster than an open procedure.

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Abstract no.: 45333

LONG-TERM RESULTS OF TREATMENT OF PATIENTS WITH HALLUX VALGUS WITH THE USE OF MINIMALLY INVASIVE SERI-OSTEOTOMY

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Introduction. The problem valgus deformity of the first toe is still relevant today. Valgus deviation of the first toe is the second largest after flatfoot foot diseases. This deformation occurs more often in young and working-age women. According to various authors there are more than 200 techniques for surgical correction of hallux valgus. The search for the optimal method is still going on. Objective: The aim of the work is to evaluate the efficacy of minimally invasive SERI-osteotomy in the treatment of valgus deformity of the first toe. Materials. In the period from 2012 to 2014yrs under our observation were 30 patients with varying degrees of valgus deviation of the first toe, treated by SERI osteotomy. From them, female - 23 male - 17. The average age of women was 37 years, men - 45 years. Operations were performed on 54 feet. Evaluation was performed at 1 month, 6 months and 1 year after surgery by the AOFAS scale. Results. At 1 year after surgery, all patients returned to normal life. Of the 30 patients, 7 were obtained excellent results (95-100 points), in 20 patients with good results (78-90 points), from 3 - satisfactory (60-70 points). All patients were satisfied with the outcome of treatment. Conclusion. Minimally invasive technique SERI osteotomy is an effective, and not inferior to the rest of the performance techniques of surgical treatment and can be used in the surgical correction of valgus deformity of the first toe.

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Abstract no.: 42670

SINGLE EVENT MULTILEVEL SOFT TISSUE RELEASE FOR SPASTIC DIPLEGIC CEREBRAL PALSY

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Objectives: We evaluated the results of single event multilevel surgery for treatment of contractures of lower extremities in spastic diplegic cerebral palsy patients in our hospital. Methods: The study included 40 patients (23 boys, 17 girls; mean age 8.9 years) with spastic diplegic cerebral palsy, who underwent single event multilevel surgery for the treatment of soft tissue contractures in lower extremities secondary to spasticity between 2006-2009. Evaluations were based on pre- and postoperative (Follow up for 3 years), physical examination and video observational gait pattern on the Gross Motor Function Classification System (GMFCS) scores, Functional Mobility scales (FMS) Results: Range of motion of all operated joints were increased postoperatively, resulting in significant improvement in posture, gait and balance of patients. The mean GMFCS scores were 4.2 preoperatively, 4.1 at postoperatively 1 year, 3.8 at postoperative 2 year and 3.0 at postoperative 3 years which were significantly at 2 and 3 years postoperative period ($p<0.05$). The mean FMS scores were improved at 5 meters postoperative at 1,2 and 3 years ($p<0.05$). The mean FMS scores at 50 meters were improved at 3 years postoperative period. Conclusion: Single event multilevel surgery definitely help spastic diplegic cerebral palsy patients improving range of motions, gait patterns and mobility functions.

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THE TRIPLE PELVIC OSTEOTOMY IN TREATMENT OF THE II TYPE AVN IN CHILDREN

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Lateral growth disturbance of the proximal femur may occur after treatment of developmental dysplasia of the hip. This resultant dysplasia is also known as Kalamchi and MacEwen Type II avascular necrosis (AVN). We study the efficiency of using the triple pelvic osteotomy in treatment of the II type AVN in 21 children (28 hip joints). The average age when to patients operative treatment was carried out, was 14 years and 5 months. The mean follow-up is about 8 years. Viberg's angle before operation averaged 17.2 °. After operation Viberg's angle averaged 46.9 ° (varied from 29 ° to 68 °). The high figures of a Viberg's angle in the postoperative period are connected with that was specially created "reserved stability" in a hip joint that to keep it, despite the proceeding development of deformation from proximal department of a femur. The degree of a bone covering of a head of a femur before operation averaged 0.7. After surgical treatment this indicator increased to an average value 0.96. As for Sharp's angle, before intervention it varied from 39° to 58 °, averaging 47.3 °. After operation this indicator averaged 27.8 ° (varied from 9 ° to 42 °). Thus, the triple pelvic osteotomy with success can be used in treatment of the II type AVN in children.

Date: 2016-09-08
Session: Short Free Papers - Paediatrics
Time: 10:30 - 12:00
Room: Tintoretto 2

Abstract no.: 43214

THE RELATIONSHIP BETWEEN POWER DOPPLER PERFUSION PARAMETERS OF FEMORAL HEAD BLOOD SUPPLY AND SEPTIC ARTHRITIS OF HIP IN INFANCY

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Aims: To document perfusion parameters on colour & power Doppler in capsular vessels in septic hip and compare with normal hip. Methodology: 90 infants with normal hips (age 2 days - 6 months) in control group to establish nomogram. 30 infants having septic hips (age 12 days - 15 months) enrolled as cases. Standard gray-scale, colour and power doppler sonograms of both hip joints were performed. A) On gray-scale ultrasound, presence of synovial effusion & debris was noted. B) Power Doppler sonograms were performed to detect hyperaemia. C) On color Doppler, velocity of blood flow in ascending posterior femoral neck vessels and resistance & impedance ratios were noted. Parameters studied were: PSV (Peak systolic velocity); RI (Resistance Index)= Systolic flow-End diastolic flow)/Systolic flow; PI (Pulsatility Index) = Systolic flow-end diastolic flow)/Average flow; SD ratio=(Systolic flow/diastolic flow). Results: Amongst various objective parameters, only peak systolic velocity was found to have statistically significant difference between septic and normal groups (p= 0.023). Average PSV in septic group was 8.55 mm/sec, sensitivity of PSV as diagnostic tool was 73%, specificity was 88.8%, positive predictive value was 68.5%, and negative predictive value was 90.9%. High velocity, low resistance blood flow was documented in the septic hip group. No statistically significant difference was found in other parameters (RI, PI and SD ratio). Conclusion: Of all objective Doppler parameters, peak systolic velocity was found to be a consistently high, sensitive parameter to diagnose septic effusion early within 24 to 48 hours, thus aiding in early pick-up

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Abstract no.: 43189

THE RIB CONSTRUCT FOR MANAGEMENT OF EARLY ONSET SPINAL DEFORMITY WITH SEVERE THORACIC KYPHOSIS

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An increased complication rate for patients with early onset thoracic hyperkyphosis has been documented. We present clinical data to document the efficacy of the Rib Construct (RC) for management this deformity. 14 patients with at least 2 years followup and either T1-T5 kyphosis >20° or T1-12 kyphosis >70° underwent management with the RC. The construct consists of downgoing hooks on ribs 2-3, and upgoing hooks on ribs 4-5, creating a claw. Distal fixation varied depending on the clinical picture. Etiologies included 4 syndromic, 4 congenital, 3 idiopathic, 2 neuromuscular, and 1 juvenile osteoporosis. Age at initial surgery 26-125 months, average 84. Follow-up Number of lengthenings 1-7, average 4. Follow-up 24-78 months, average 49. : 3 patients had T-5 hyperkyphosis, with total thoracic kyphosis <70°. Preop T1-5 kyphosis 22-26°, total kyphosis 42°; postop 17.3° and 37. 11 patients had total kyphosis > 70°(range 74-149), average 104.2°, postop 35-107°, average 66.5. 1 patient with juvenile osteoporosis treated early in our experience was complicated by rib fracture, instrumentation placed ai T4 was removed, no improvement in kyphosis. There were 2 additional proximal hook failures, both corrected with additional surgery. There were 3 distal instrumentation failures, 1 broken rod, 2 deep wound infections(instrumentation removed in 1, replaced 1 year later), and 1 superficial infection. ! PJK occurred after definitive procedure when rib hooks were replaced with pedicle screws. 8/14 patients had unplanned additional surgery. The RC provides excellent proximal fixation for patients with thoracic hyperkyphosis.

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Abstract no.: 43953

ROLE OF SKIN TRACTION AND THIGH LACER IN FRACTURE SHAFT FEMUR IN CHILDREN

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Introduction: Fracture of shaft of femur in children is one of the most common fractures encountered in children. Increase in number of cases of fracture shaft of femur in children in orthopedics practice is related to high energy trauma, so it may be associated with multiple system injuries Aims: To evaluate the treatment of fracture of the shaft of the femur in children with skin traction and thigh lacer (functional bracing) on Bohler-Braune splint to correct over riding of fracture fragments, angulation of fracture fragments and average time taken for return of normal activity. Materials and Methods: This was a prospective study conducted in Dr. D.Y. Patil Medical College and Research Center from September 3013 to May 2015. It included 30 patients of age less than 12 years treated by skin traction and thigh lacer of various fracture patterns of femur. Results: In the present study of 30 patients the average time taken for radiological union to occur was 27 days. Shortest time taken for union was 21 days and longest time for union was 30 days. Union rate was 100%.There was no case of non-union. Conclusion: Thus we have concluded that conservative treatment of fracture of shaft of femur in children up to the age of 12 years by skin traction followed by application of thigh lacer is very economical and effective method of treatment with least psychological effect on child and family members.

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Abstract no.: 45491

THE MANAGEMENT OF SUPRACONDYLAR HUMERAL FRACTURES IN CHILDREN - AUDIT REVIEW OF PRACTICE IN A BUSY DISTRICT GENERAL HOSPITAL OVER A CALENDAR YEAR

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Introduction: The introduction of the British Orthopaedic Association Standards of Trauma 11 sets out the gold standard of the management of supracondylar humeral fractures in children. This audit review the compliance of a busy district general hospital over a year of the management of this injury, which should be at 100%. Methods: A retrospective review of electronic casenotes, intra- and post- operative radiographs, and fracture clinic review notes over 1 year. Results are compared to standards in the following categories: Documented assessment of injured limb at the time of presentation (sub-divided), time to operative treatment, fixation method, timing of check radiographs and timing of removal of wires. Results: BOAST11 advocated documentation of individual components of neurovascular status. This is generally poorly documented by both the emergency medicine physician (3%-53%) and the orthopaedic doctors (0-63%). However, general mention of vascular and neurological status, although inadequate, were far more encouraging (90%/74% by EM, 93%/80% by T&O). Otherwise, 94% of patients were operated on within 24hours, and 94% were by bicortical wires. Only 59% had their check radiographs within the recommended 4-10days post-operatively, and 73% had removal of wires within the recommended 3-4weeks post-operatively. Conclusions: There is much room for improvement in all areas and an educational drive is required for both emergency medicine physicians and orthopaedic staff to familiarise with the standard of assessment documentation expected. There is also a need to improve coordination of fracture clinic activities on discharge to ensure check radiographs and removal of wires are performed on time.

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Abstract no.: 44951

HAND AND WRIST TUBERCULOSIS IN PAEDIATRIC PATIENTS- OUR EXPERIENCE IN 44 PATIENTS

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Introduction: Though rare, the tuberculosis of hand and wrist are cause of major morbidity. Common feature among all available reports on hand and wrist tuberculosis was a delay in diagnosis causing residual stiffness and pain after treatment. Skeletal tuberculosis may behave differently in this age compared to the adult population. Paucity of world literature coupled with a difficulty in diagnosis resulting in morbidity encouraged us to work on the topic Materials and method: 44 patients with skeletal lesion in hand and wrist were studied. The diagnosis was confirmed using biopsy. Patients were started on multidrug ATT. Those not responding were taken up for debridement. All patients were assessed on Green O'Brian scoring system. . All these patients were studied separately for the clinical presentation, the nutritional status (Rainey-Mcdonald nutritional index), time from onset of symptoms to presentation, treatment required, prognosis and complications. Results: Proximal phalanx of 4th digit and metacarpal of 5th digit were most commonly involved bones in our series with 5 cases of each. Capitate was most common carpal bone followed by lunate. The duration of symptoms ranged from 5 weeks to 24 weeks (mean: 7.6 weeks. 13 patients did not respond favourably to ATT over 8 weeks period who were taken up for surgery. 3 of these patients had multi-drug resistance. Conclusion: A very high index of suspicion, MRI and early biopsy are required for timely diagnosis of skeletal tuberculosis of hand and wrist. Early commencement of ATT was most important factor for good results.

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Abstract no.: 43141

CORRECTION OF LOWER LIMB DEFORMITIES IN CHILDREN WITH RENAL OSTEODYSTROPHY BY HEMIEPIPHYSIODESIS METHOD

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Background: Children with renal osteodystrophy (ROD) may develop severe angular deformities. We report our experience concerning the correction of lower limbs deformities by hemiepiphysiodesis. Methods: 7 patients (5 m. and 2 f.) with ROD presented 1 varus and 13 valgus deformities of the knee (range from 10° to 47°). Hemiepiphysiodesis was performed by eight-plates in 18 limb segments. In one patient with severe valgus was associated an additional tibial osteotomy. Mean age at surgery was 7.8 yrs (range 2.9 – 13.6 yrs). Three patients were on haemodialysis, and 4 had functioning kidney grafts. Results: At an average follow-up of 5.2 years (range 2.3 – 8 yrs) restoration of a normal mechanical axis was achieved by a single operation in 3/6 patients. In 2 patients the deformity relapsed requiring a second procedure. In one patient the correction of a windswept deformity required 6 operations. The average time for correction was 20 months (range 7 – 30 months). There was no major complication in the post-operative period. In a patient one screw mobilized after 4 months; in another patient there was the rupture of a screw during the removal. At the final follow-up all patient but one, suffering femoral osteonecrosis at the knee, were functional and symptom-free. Conclusions: Hemiepiphysiodesis resulted safe and effective for correction of lower limbs deformities in children with ROD. However, due to the metabolic disorder, these children are prone to relapse and must be strictly monitored till the end of skeletal growth.

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Abstract no.: 44578
CALCANEUS STOP. 20 YEARS OF EXPERIENCE

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Between 1995 and 2015 we operated on 198 patients (392 feet), 110 boys and 88 girls, 194 bilateral and 4 unilateral. The oldest 16 years old, the youngest 7. All of them severe flat feet (painful), footprint grade 3 according to Viladot classification, and with a pronated hindfoot higher than 15°. Follow up: Higher 19.5 years. Lesser 4 months. Average 11.7 years. Technique: minimal incision on subtalar joint of 2 cm, with hindfoot supination, drilling perforation between the articular surfaces of the calcaneus, from proximal to distal, and placing a 4.5 malleolar screw. No postoperative cast, only a bandage. Weight bearing on 2nd day postoperative. For the results we evaluated those parameters: hindfoot deformity correction, complete correction of the longitudinal arch, painless calves and feet, better performance in sports, no postoperative orthosis, and no tired footwear. Patient and family's satisfaction after surgery. Improvement of all Rx parameters. Good results 188 patients (94.9%, meet all parameters) 10 patients (5.1) painful by screw bad location. Conclusion: Simple technique, Minimal incision Surgery whit 94,9% of good results, most patients were satisfied with the results. Low incidence of complications.

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Abstract no.: 43277

MONITORING OF NITRIC OXIDE METABOLITE LEVEL IN CEREBROSPINAL FLUID IN ACUTE SPINAL CORD INJURY-AN OUTCOME ANALYSIS

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INTRODUCTION: To establish the significance of Cerebrospinal fluid (CSF) nitric oxide metabolite (NOx) concentration in acute spinal cord injury (SCI) patients to assess the neurological severity and prognosis. Methods: Forty Spinal Cord Injury patients were taken as case and twenty lower limb injury patients were taken as control. NOx concentration in CSF was measured at 1st, 2nd and 4th weeks by GRIESS method. MRI (T2 weighted) done in each case to measure cord edema and neurological severity was assessed using FRANKELS classification. Results: The CSF NOx concentration peaks at 2nd week and declines to normal by 4th week whereas it remains normal throughout in controls. Therefore, mean NOx concentration was directly proportional to the severity of acute spinal cord injury as correlated with cord edema seen in MRI and neurological severity assessed. Conclusion: CSF NOx concentration can be considered a specific quantitative biomarker in acute stage of SCI to predict the severity and prognosis of SCI patients

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Abstract no.: 45217

DEVELOPMENT AND IN VIVO ANALYSIS OF A NEW BIOACTIVE INJECTABLE BONE-SUBSTITUTE MADE OF CALCIUM PHOSPHATE AND STRONTIUM

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Fractures often implicate bone-loss, especially if they are due to osteoporosis. Biomaterials increasingly similar to the bone and directly in-situ injectable are frequently required. The purpose of this study is to evaluate a new bioactive, osteoconductive and injectable cement, made of calcium phosphate enriched with ions of strontium (Sr-HA). The new cement was made from Sr-substituted TCP (Tricalcium-Phosphate) powders. The “In-vivo” study was performed using as control a cement made of calcium phosphate already used (KyphOs FSTM-Medtronic). The cements were implanted in the paravertebral region of rats and in the femoral condyle of rabbit (NZW). The one month explants were examined with microscopic, radiographic (X-ray and Micro-CT), histological and histomorphometric analysis and with blood-urine tests, and histology of spleen and liver and peri-implant tissues in order to assess systemic toxic effects. The osteointegration indexes detected with histological and histomorphometric analysis were significantly better in the Sr-HA compared with the control material. At one month the bone-material contact rate was found to be higher in the Sr-HA cement (43,7% vs 32.6%) also the bone-penetration rate was higher (93.6% vs 71.8%) that was statistically significant. There was no evidence of local/systemic toxicity. The Sr-HA cement has shown bioactive properties (osteoconductive) comparable/superior to the control material. The mechanical characteristics, intra and post-operative settings were satisfactory. Based on our results, the Sr-HA cement may represent a new injectable biomaterial for the treatment of pathologies like vertebral collapses or a filler in the fracture bone-loss, being result even better than the control product, currently available.

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Abstract no.: 45016

FATIGUE TESTING OF A COMPOSITE MENISCUS IMPLANT - WHAT ARE THE LIMITS?

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Introduction: Long-term fatigue remains main obstacle in introduction of synthetic total meniscus implant. The first meniscus implant reaching the clinical study phase was developed by our group. It is constructed from polycarbonate-urethane (PCU) matrix reinforced with ultrahigh molecular weight polyethylene (UHMWPE) fibers. In this study, fatigue testing was conducted up to 25 million cycles (Mc) to evaluate its expected service-life and potential failure modes. Methods: Fatigue resistance was characterized by S-N curve. Loading pattern was based on ISO-14243-3, dictating loading conditions of normal gait (2500N peak load, medially). Four additional conditions were rescaled to maximum peak loads of 3000N, 3500N, 4000N, 4500N until failure or reaching 25 Mc (Failure defined as tear of PCU/UHMWPE fibers). Upon test completion, the articulating surfaces were imaged by ESEM. Results: Under 2500N (ISO-14243-3), all 5 implants reached 25 Mc without failing. Under 3000N, the implants had service life of 15.0±3.1 Mc. Failure mode was creep of PCU, which developed into tear. Higher loads (3500N, 4000N, 4500N) demonstrated similar failure mode, but shorter failure times (5.2±1.3, 3.0±0.8, 2.1±0.9 Mc, respectively). Microscopic evaluation showed smooth surface before simulation that became dominated by depressions and protrusions post simulation. Discussion: The S-N curve showed that under gait-like conditions, the implant does not exceed asymptotic fatigue limit. The implant proved to be resilient to fatigue, even at loads higher than ISO-14243-3. Even at highest impact activities (representing running), the implant remained intact for 2 Mc, which is a significant improvement compared to other materials tested as meniscus replacement materials.

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Abstract no.: 42838

EVALUATION OF TITANIUM-COATED PEDICLE SCREWS: IN-VIVO PORCINE LUMBAR SPINE MODEL

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Introduction. Many studies have addressed the problem of loosening pedicle screws in spine surgery, which is a serious concern. Titanium coating of medical implants (arthroplasty) is common, but there are few reports on in-vivo spine models. We evaluated the radiological, mechanical and histological characteristics of titanium-coated pedicle screws, as compared to uncoated or hydroxyapatite (HA)-coated pedicle screws. Methods. Three different types of pedicle screws i.e., uncoated, HA-coated, and titanium-coated were implanted into lumbar 3-4-5 levels of 9 mature miniature pigs. Radiological evaluation of loosening of pedicle screws was performed. Peak torsional extraction torque was tested in the 42 screws from 7 miniature pigs at 12 weeks postoperative. Interface of implant and bone was assessed by micro-computed tomography (CT) and histologic studies for the remaining 12pedicle screws from 2 miniature pigs of each group. Results. The incidence of loosening at 12 weeks postoperative was not statistically different between the titanium-coated pedicle screw group and other groups. The titanium-coated pedicle screw group revealed greatest mean extraction torsional peak torque at12 weeks postoperative($P<0.05$). Quantitative data from micro CT was higher in the titanium-coated pedicle screw group ($P <0.05$). Histologic finding showed osteointegration with densely packed new bone formation between the interface of coatings of screw and bone in the titanium-coated pedicle screw group. Conclusions. Fixation strength was greatest in the titanium-coated pedicle screw group. Osteointegration in the interface of titanium coated implant and bone produced prominent and firm bonding. The titanium-coated pedicle screw is a promising device for spinal surgery application.

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Abstract no.: 44658

REAR-FOOT LOADING IS MORE PREFERABLE THAN FOREFOOT LOADING IN PARTIAL WEIGHT BEARING – RESULTS FROM IN VIVO MEASUREMENTS OF TIBIA DEFORMATION

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Introduction: Partial weight bearing is part of treatment schemes in orthopedic surgery and traumatology. Aim of the present study was to explore to what degree ground reaction forces during partial weight bearing of the lower leg are related to given instructions and to tibia deformation. Methods: Tibia deformation (torsion, medio-lateral and anterio-posterior bending) was measured for rear foot and forefoot loading, 10 kg, 20 kg and half body weight instructions compared to full loading in five healthy male subjects using the “Optical Segment Tracking” approach, a motion-capturing based method that uses monocortically fixed bone screws. Results: 1. Ground reaction force was a good indicator of tibia deformation. 2. Participants significantly under-loaded during half-body weight instructions ($P < 0.001$) while they overloaded when loading the forefoot only. 3. Partial-loading instructions led to highly significant and systematic reduction in peak ground reaction force (GRFpk) in all three types of tibia deformation with substantial variation between measurements. 4. Forefoot usage was associated with significant, albeit moderate increases in GRFpk ($P = 0.0031$), in AP-bending ($P = 0.0027$) and in torsion ($P < 0.001$), compared to rear foot loading. Discussion: These findings result in the following clinical “lessons learned”: 1. GRF is a good reflection of loading-induced deformation of the tibia. 2. GRFs are hard to control by subjects/patients. 3. The expectation that forefoot-loading results in larger tibia deformation could not be confirmed in our study. 4. When aiming at a reduction in tibia deformation, rear-foot loading is more preferable than forefoot loading.

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Abstract no.: 43302

EVALUATION OF THE EFFECTS OF PEDICLE SCREW CHARACTERISTICS ON CONTRALATERAL IMPLANT LIFESPAN VIA FINITE ELEMENT ANALYSIS AND TAGUCHI'S METHOD

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Loosening due to overloading and screw breakage are commonly cited reasons for implant failure in spine surgery. In this study, the authors evaluated the effects of the screw malposition and length on the other screw at same level in terms of implant lifespan (fatigue-life) via finite element analysis (FEA) and Taguchi's method. Totally,18 finite element solid models were created to investigate the effect of location of displacement (medial, lateral, control), insertion angle (0°,27°,40°) and screw length (short: 42 mm, long: engaged to anterior cortex) of the contralateral screw at same level with respect to implant lifespan. 400, 500,600,700,850 and 1000 Newton (N) forces were applied respectively in all models. Only 1st screws characteristics were changed and 2nd screws were evaluated. Implant lives of 2nd screws were calculated in terms of cycles. Taguchi's statistical method was used to investigate which factor has a critical importance on implant lifespan. Lifespan was statistically significantly lower in medially displaced group when compared with control and laterally displaced screws (p=0,028). But There was no statistical significant difference between laterally displaced and control group with respect to implant lifespan (p=0,173). According to the Taguchi's analysis; 1st screw accuracy was more important factor than screw length and insertion angle. And 1st screw length was the least important factor on implant lifespan of 2nd screw. Provided that first implanted screw is placed accurately, the second implanted screw may decrease implant lifespan of the first screw at same level in case of the medial displacement of the second screw.

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Abstract no.: 43286

FOOT LOADING AND GAIT ANALYSIS EVALUATION IN 13 CONSECUTIVE PATIENTS SUFFERING FROM BI COLUMN ACETABULAR FRACTURES TREATED BY OPEN INTERNAL SURGERY

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The aim of surgical treatment of acetabular fractures is to allow rapid mobilization of patients in order to restore stance and gait stability (postural control), as this significantly correlates with a positive outcome. The regulation of postural stability is mainly controlled by transmission of proprioceptive stimuli. In addition, the pelvis serves as a connection between the legs and the spine and thus is also of great importance for mechanical stabilization. Therefore, the aim of this study was to examine the impact of surgically treated bi column acetabular fractures on postural stability by gaint analysis and foot loading after a mean of 16 months. A retrospective case control study of 13 patients with surgically treated pelvic acetabular fractures. The average time of follow-up was 16 (6-120) months. The most important outcome parameter in this investigation was the overall Sagittal Balance. Harris Hip Score, the health-related quality of life (SF-12) and pain were supplementary outcome parameters. It was found that surgically treated bi-column acetabular fractures influence on postural stability, when acetabular is not good reduced (≥ 4.5 mm). Surgically treated acetabular fractures do not lead to deterioration in postural control in the mid-term. This is of high prognostic importance for rapid mobilization of the patients. Therefore no increase in the risk of falling is expected after successfully treatment of fracture.

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Abstract no.: 43266

EVALUATION OF 3 SCOUTING KNOTS AND MODIFIED ROLLING HITCH FOR SOFT-TISSUE GRAFT FIXATION: A PORCINE BIOMECHANICAL STUDY

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Introduction: Several needleless techniques for tendon graft fixation have been previously reported with several advantages. Modified rolling hitch, adapted from a kind of scouting knot, was one of them. Anchor hitch, round turn and two half hitches, and rolling hitch are scouting knots that are commonly used to attach objects. The purpose of this study was to evaluate the tendon graft holding strength of anchor hitch, round turn and two half hitches, rolling hitch, and modified rolling hitch. Methods: Forty fresh-frozen porcine flexor profundus tendons were used and randomly divided into 4 groups of 10 specimens. The experimental procedure was designed to assess elongation of the suture-tendon construct across 4 different needleless tendon-grasping techniques. All suture configurations were completed with a multistranded nonabsorbable suture. Each tendon was pre-tensioned to 100 N for 3 cycles, cyclically loaded to 200 N for 200 cycles, and then finally loaded to failure. Elongation, load to failure, and mode of failure for each specimen were measured. Results: All specimens of anchor hitch and round turn and two half hitches failed during pre-tensioned. Half of rolling hitch specimens failed during cyclic loading. The elongation after cyclic loading were not statistically different between successful rolling hitch (19.3%±6.3%) and modified rolling hitch(21.3%±9.5%); ultimate failure load were also not different between two groups. Conclusions: Compared to anchor hitch, round turn and two half hitches, and rolling hitch, modified rolling hitch had better biomechanical properties, and it should be greatly promoted as an alternative for tendon graft fixation in ligament reconstruction.

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SELF-PERCEPTION IN ORTHOPAEDIC TRAINEES: IS THERE A GENDER DIFFERENCE?

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As the number of women in orthopaedics steadily increases, we look at the self-perception of female and male trainees. We hypothesise that female trainees in orthopaedics have a lower estimation of their own abilities than their male counterparts. Primarily using the Multi-source Feedback (MSF) tool from the ISCP website, we aim to recognise potential training differences that may be relevant in improving overall performance for trainees. In our pilot study we show that 64% of male trainees rate themselves as outstanding in at least one subsection of the MSF; this is compared with only 14% of female trainees. Similarly, 9% of male compared with 57% of female trainees had external comments suggesting more confidence is needed. We look at overall potential gender differences and suggest simple training techniques that may be helpful to modify inaccurate self-perception. This study is being done with a view to undertaking a larger national ISCP-based project looking largely at self-perception.

Date: 2016-09-08
Session: Short Free Papers - Research
Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 45323

IMPROVING PERFORMANCE WITH EXCELLENCE: THE EFQM MODEL IN ORTHOPEDICS

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Introduction: The European Foundation for Quality Management (EFQM) model as a total quality management system is widely used in companies for quality improvement. The use of EFQM in health care, however is challenging and little is known about quality management in orthopedics. The aim of this study was to investigate the implementation of the EFQM fundamental concepts of excellence in orthopedic surgery. Methods: The EFQM model uses a multistep approach with periodical evaluation of performance using the RADAR logic (RADAR = Results Approach Deployment Assessment and Review). We defined different projects according to our three medical university scopes: patient care, research and science, teaching students and traineeship. Thereafter we designed a medical business process framework, again according to our scopes (structure follows strategy). Every two years we undergo an external assessment to evaluate performance rates. Results: We run up the levels of excellence from committed to excellence (C2E) to recognized for excellence (R4E) three star award two years ago with 380 points and R4E five star award with 550 points this year (max. 1000 points). According to our scopes we exemplary increased the total publication impact factors and number of publications in research, yielded better evaluation results from students and increased operation numbers while decreasing complication rates in patient care. Conclusion: The EFQM model is a feasible tool in total quality management in orthopedics resulting in quality improvement and patients' safety. Moreover, EFQM awards can be used for benchmarking purposes and promotion of own results on e.g. department's internet homepages.

Date: 2016-09-08
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Room: Tintoretto 2

Abstract no.: 44532

IMPLEMENTING AN OUTPATIENT TOTAL JOINT REPLACEMENT PROGRAM

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Introduction: Total joint replacement is regularly performed as an inpatient procedure, with hospital length of stay (LOS) usually ranging 3-7 days. During the last few years there has been a tendency towards shorter LOS with many fast track programs reporting good outcomes. Only a few outpatient programs are currently working with scant reported results. The aim of this study was to evaluate de first results for an ambulatory joint replacement program in a public health system. Methods: Between December 2014 and October 2015 suitable patients were scheduled for total joint replacement (hip or knee) and proposed to participate in an outpatient program. They were enrolled and followed for a 3 months period. LOS, pain, changes in outpatient track, perioperatory complications, satisfaction and willingness to participate in the same program in a future surgery were prospectively documented. Results: 54% of patients were considered suitable for being included in the outpatient track. 51 patients (34 hips, 17 knees) where operated during the study period. 47/51 (92%) of the patients could be discharged in the same day of the surgery 5 (3-10) hours after surgery. 3 patients required staying overnight in the recovery room. One patient required to be hospitalized for 2 days. One patient had a single episode hip dislocation in the 4th week after surgery. There were neither readmissions nor reoperations during the follow-up. Conclusion: This outpatient arthroplasty program appears to be safe, with a high success rate for same day discharge and was well accepted by the patients.

Date: 2016-09-08
Session: Short Free Papers - Research
Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 44209

FUNCTIONAL AND HISTOLOGICAL ANATOMY OF THE STERNOCLAVICULAR JOINT

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Purpose: The sternoclavicular (SC) joint composes of soft tissue for a joint stability due to a low bony stability. Therefore, it is difficult to achieve successful treatment for the joint disorder, such as dislocation or arthritis. We performed the anatomical and histological investigations. Methods: Eighteen SC joints were removed from 9 cadavers (Mean age: 27.6 yrs.). Cryosections were immunolabelled with collagens, glycosaminoglycans, proteoglycans and matrix proteins. Results: The SC joint composes rich fibrocartilagious tissue, including the clavicle, the sternum and an intra-articular disc. The disc compensates disproportionate congruency between the clavicle and the sternum. In samples from over 30 years, the articular cartilage of the clavicle fused with the disc and the joint cavity disappeared. The midsubstance of the SC ligaments labelled for types I and III collagen, keratocan and lumican. All of the attachments and discs were fibrocartilaginous and labelled for type II collagen, aggrecan. Although keratocan and lumican were absent from the attachments, the articular cartilage of cases from over 30 years were positive. Conclusion: The attachments of the anterior and posterior SC ligaments have a characteristic fibrocartilaginous structure to adjust to the compressive/shear load. Our findings suggest that despite the weak anterior SC ligament, a large stress is applied due to the anatomical structure and function of the joint, and it finally leads to anterior dislocation. The articular cartilage in over 30 years expresses keratocan and lumican. It suggests that the articular cartilage of this joint has already begun degenerative change in over 30 years.

Date: 2016-09-08
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Room: Tintoretto 2

Abstract no.: 43559
ROLE OF PLATELET RICH PLASMA ON TENDINOPATHIES

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Introduction: Studies suggest that platelets have the potential to stimulate the mitogenic response of the periosteum and mesenchymal cells, thus can be helpful in tissue repairing and growth factors can be successfully used to treat musculoskeletal defects. However, dose, delivery vehicle, release kinetics and clinical profile are important variables. These factors are underutilized in clinical practice when we have the overwhelmed number of patients hoping for definite management of their pathology. Clinician working in a country where economic constrains limit the outcome of diseases may be convinced that half millliliter of patients own supernatant of platelet can be a treatment revolution for such minor pathology. Methods: A prospective, blind, randomised trial was performed. All patients diagnosed with tendinopathies were randomized and managed with USG guided PRP injection (N=60) and were followed up at 1st ,4th ,12th & 24th week using VAS & DASH scoring as functional outcome score. Correlation between multiple variables including age, sex, occupation , subjects' pain and functional outcome were also evaluated subsequently. Results: Comparison of DASH score pre and post injection shows 57.63 % mean 22.95 in the 24th week (z=19.53,p- value=0.000). VAS Score shows 66.76% mean 2.26 decrease at 24th week (z=29.98,p-value=0.000). Conclusion: The current investigation represents clinically based outcome study to evaluate the effectiveness of treating tendinopathy with USG guided PRP injection. Our results suggest that this treatment may be an effective and safe treatment option for patients presenting with tendinopathy mostly in various tendinopathies.

Date: 2016-09-08
Session: Short Free Papers - Research
Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 42634

FIVE-YEAR PUBLICATION RATE OF PODIUM PRESENTATIONS AT SICOT ANNUAL CONFERENCE: AN OBSERVATIONAL STUDY

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Background: The SICOT conference committee continually try to improve the quality of presentations at their annual international meetings, however, to the author's best knowledge no previous study has been undertaken to determine abstract quality. This study aimed to determine the 5 year publication rate of presentations made at the 2009 SICOT Annual International Conference (AIC), recognise predictors of full-text publication, identify inconsistencies between presentations and publications, and determine presentation-publication delay. Methods: We retrieved all 329 oral presentation abstracts from the 2009 SICOT AIC, recorded fundamental study details and conducted a comprehensive, electronic search of Medline and PubMed to determine publication status. For subsequent publications, we examined for inconsistencies between presentation abstracts and full-text publications, whether there were retrospectively identifiable publication predictors, and calculated presentation-publication delay. Results: The 5 year publication rate for all presentations was 33%, for oral presentations. The average presentation-publication delay was 18.2 months and significant abstract-publication discrepancies were found in only 8% of publications. Publications most commonly resulted from studies related to hip and knee subspecialties. Conclusions: Our study shows that one third of all abstracts presented at SICOT led to a full text publication. This is a positive outcome particularly when made in comparison to similar studies of other world class international conferences such as EFORT and AAOS. This study re-enforces SICOT's reputation as a world leading international conference with a strict peer-review process yielding high quality presentations.

Date: 2016-09-08
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Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 42512

SHOCK WAVES PROMOTE THE CELLULAR UPTAKE AND ENHANCE THE CYTOTOXICITY OF METHOTREXATE BY INCREASING ATP-MEDIATED PERMEABILIZATION OF CELL MEMBRANE

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Osteosarcoma is the most prevalent primary malignant bone tumor, but treatment is difficult and prognosis remains poor. Recently, large dose chemotherapy has achieved better outcomes, but can cause many side effects. Minimizing the dose of chemotherapeutic drugs, while optimize the curative effect is a current challenge for the management of osteosarcoma patients. We report here that shock waves promote the cellular uptake and enhance the cytotoxicity of methotrexate by increasing ATP-mediated cell membrane permeabilization. Treatment of human osteosarcoma U2OS cells with fewer than 450 shock waves of 7 kV or fewer than 200 shock waves of 14 kV did not reduce cell viability. Shock waves significantly promoted U2OS cell uptake of fluorophores Calcein and Lucifer Yellow CH dilithium salt. Importantly, shock waves significantly enhanced U2OS uptake of chemotherapy drug methotrexate, and increased the rate of methotrexate-induced apoptosis. Mechanistically, shock waves increased the extracellular concentration of ATP, and KN62, an inhibitor of ATP cell surface receptor P2X7, significantly ameliorated the capacity of shock waves to enhance methotrexate-induced apoptosis. Our results suggest that shock waves promote methotrexate-induced apoptosis by altering cell membrane permeability. Shock waves may represent a promising adjuvant therapy for osteosarcoma.

Date: 2016-09-08
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 45659

UTILISING FINITE ELEMENT ANALYSIS TO PREDICT HEALING AND WEIGHT BEARING STATUS OF COMPLEX TIBIAL FRACTURES TREATED WITH ILIZAROV FRAMES

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Introduction: Comminuted fractures involving the tibia are associated with a high level of complications including delayed healing and non-union, in conjunction with dramatically increased healthcare costs. Certain clinicians utilise a Pixel Value Ratio of 1 to indicate such fracture healing. The subjectivity of this method has led to mixed outcomes including regenerate fracture. The poor prognosis of complex load bearing fractures is accentuated by the fact that no quantitative gold standard currently exists to which clinicians can reference regarding the definition of a healed fracture. Aim: The aim of the current study is to use patient specific finite element analysis of complex tibial fractures treated with Ilizarov frames to demonstrate callus maturation and to determine the optimum frame removal time. Methods: 3 patients (2 males, 1 female) were analysed following presentation with complex tibial fractures treated with Ilizarov frames. Patient specific computational analysis was performed according to radiographic data, incorporating maturing material properties to analyse the callus response to weight bearing over the healing timeframe. Computational results were compared to the Pixel Value Ratio method to evaluate its efficacy in determining the optimum Ilizarov frame removal time. Results: All fractures were observed to clinically heal at a mean of 25.4 (±2.404) weeks. Following computational analysis however, the mean optimum Ilizarov frame removal time was seen to be 23.5 (±2.323) weeks. When compared with the Pixel Value Ratio (PVR) method, the suggested removal time presented a mean PVR of 1.025 (±0.017).

Date: 2016-09-08
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 45627

SILVER COATED PROSTHESIS IN ONCOLOGYCAL LIMB SALVAGE SURGERY REDUCE THE INFECTION RATE

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Silver as coating material in surgical devices, has demonstrated good antimicrobial activity and low toxicity. Oncological surgery of the musculoskeletal system has a high risk of infection, so silver-coated tumor implants have been introduced. We performed a retrospective analysis of 158 cases of bone tumors, primary or metastatic, treated between 2002-2014 with wide margins resection and prosthetic reconstruction. The average age was 59 years (11-78 years), all patients were treated by the same surgeon and followed antibiotic prophylaxis according to a standard protocol. In 58.5% of patients were implanted silver-coated prostheses (MUTARS), in the remaining part, uncoated-tumor prosthesis. Patients were re-evaluated annually and were recorded complications occurred, with particular attention to infectious diseases. At a mean follow-up of 39.5 months 23.4% of patients died, 18.4% required a new surgery among them 12.6% due to early or late infection. 2.2% of patients treated with silver-coated implants developed early infections against 10.7% of the other group. Late infections rate, occurring from 6 months after surgery, was similar between the 2 groups. A microscopic study on explanted silver-coated prosthesis was performed. It confirmed a noticeable degradation of the silver-coating, that is likely related with higher rate of late infection. No patient has ever shown any sign of local or general toxicity secondary to silver. Considering the absence of signs of toxicity and the lower rate of early infection, we recommend the use of silver-coated prostheses as primary implants for limb salvage surgery, in primary or metastatic bone tumors.

Date: 2016-09-08
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 43827

SYNOVIAL HEMANGIOMA OF THE KNEE JOINT IN PEDIATRICS: THREE PATTERNS OF TUMOR LOCATION

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Synovial hemangioma is a benign intra-articular tumor. This condition is rare and unfamiliar soft tissue tumor to most orthopedic surgeons. Delayed diagnosis causes osteoarthritic damage and the destruction of joint structures due to infiltrating tumor growth. 10 patients were treated surgically in our department. These comprised 5 males and 5 females ranging in age from 0 to 26 years (average age 14.6 years). Preoperative diagnosis was made using clinical findings, plain radiographs and magnetic resonance imaging. The average follow-up time after surgery was 1.3 years. The main symptom was pain. Five cases revealed hemarthrosis. The range of motion of the affected knee joint was limited in 5 cases. The average time between onset of pain and diagnosis was 3 years. Tumor location was classified into three patterns: 1) anterior patella-femur joint type (PF) in five, 2) posterior popliteal type (popliteal) in 2, and 3) diffuse proliferation type (diffuse) in 3. Arthrotomic tumor resection was performed in all cases. No tumor recurrences were experienced after a minimum follow up of 1 year, Clinical symptom and MRI are helpful to obtain the diagnosis and determine the extent of the lesion. Awareness of the existence of synovial hemangioma is important to prevent late diagnosis. Depending on the tumor location, synovial hemangioma in the knee joint can be classified into PF, popliteal and diffuse types. Arthroscopic resection may be indicated only if the tumor is localized in the PF joint. Open arthrotomy with sufficient tumor and synovectomy is important to prevent tumor recurrence.

Date: 2016-09-08
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Time: 16:00 - 17:30
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Abstract no.: 43115

A COMPARATIVE STUDY OF MINIMALLY INVASIVE APPROACH USING PERCUTANEOUS PEDICLE SCREWS FIXATION VERSUS OPEN APPROACH IN METASTATIC SPINE TUMOUR SURGERY

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Minimally invasive spinal surgery (MISS) has been gaining recognition in patients with metastatic spine disease (MSD). The main advantages of MISS are reduction in blood loss, hospital stay and postoperative morbidity. We conducted a retrospective analysis of prospectively collected data comparing MISS (n= 27) and open (n=18) approach in 45 patients with symptomatic MSD (neurological deficit, spinal instability or both), who underwent posterior spinal stabilization and/or decompression. Preoperative, intraoperative and postoperative parameters were collected. All patients were followed up until the end of study period (t=4 years) or till their demise. The primary outcome measures were blood loss, operative time, length of hospital stay and time taken to initiate radiotherapy/chemotherapy after index surgery. There was a significant reduction in amount of blood loss (621 ml less, $P<0.001$) and time to initiate radiotherapy by 11 days ($P<0.001$) in MISS group. Operative time and duration of hospital stay were also favourable in MISS group, though the differences were not significant. All patients in both groups showed improvement in pain, neurological status, independent ambulation and ECOG score in the postoperative period. MISS approaches have shown promising results in MSD due to less peri-operative morbidity and allowing earlier radiotherapy/ chemotherapy. MISS approaches are there to stay and evolve with time for the treatment of MSD due to less peri-operative morbidity and allowing earlier initiation of Radiotherapy and/or Chemotherapy.

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Abstract no.: 44594

POLO-LIKE KINASE 2 ACTING AS A PROMOTER IN HUMAN TUMOR CELLS WITH AN ABUNDANCE OF TAP73

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BACKGROUND: TAp73, a member of the p53 tumor suppressor family, is frequently overexpressed in malignant tumors in humans. TAp73 abundance and phosphorylation modification result in variations in transcriptional activity. PLK2 displayed a close relationship with the p53 family in affecting the fate of cells. Herein, we investigate the hypothesis that PLK2 phosphorylates TAp73 and inhibits TAp73 function. MATERIALS AND METHODS: Osteosarcoma cell lines were used as natural models of the different expression levels of TAp73. Phosphorylation predictor software were used to analyze the phosphorylation sites. Coimmunoprecipitation, phosphor-tag Western blot were used to determine the interactions between PLK2 and TAp73. TAp73 activity was assessed by Western blot and RT-PCR, which we used to detect P21 and PUMA. The physiological effects of PLK2 cross talk with TAp73 on cell cycle progress and apoptosis were observed by flow cytometry and terminal deoxynucleotidyl transferase dUTP nick end labelling assays. RESULTS: PLK2 phosphorylates TAp73 at residue Ser48 and prohibits TAp73 translocation to the nucleus. Additionally, PLK2 inhibition combined with a DNA-damaging drug upregulated p21 and PUMA mRNA expression to a greater extent than DNA-damaging drug treatment alone. Inhibiting PLK2 in TAp73-enriched cells strengthened the effects of the DNA-damaging drug on both G1 phase arrest and apoptosis. Pre-treatment with TAp73-siRNA weakened these effects. CONCLUSION: These findings reveal a novel PLK2 function which suppresses TAp73 functions. PLK2 promotes the survival of human tumor cells, a novel insight into the workings of malignant tumors characterized by TAp73 overexpression, and one that could speed the development of therapies.

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Abstract no.: 43035

EXTENT OF SURGERY DOES NOT INFLUENCE 30-DAY MORTALITY IN SURGERY FOR METASTATIC BONE DISEASE

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Introduction: Patient survival has been a main focus when treating metastatic bone disease (MBD) in the appendicular skeleton. This has been done in an attempt to allocate the patient to a surgical procedure that outlives them. No questions have been addressed whether extent of the surgical trauma reduces survival for these patients. Aim of study: To evaluate if perioperative parameters is risk factors for 30-day mortality in patients undergoing surgery for MBD in the appendicular skeleton. Patients and Methods: We identified 270 consecutive patients who underwent joint replacement or intercalary spacing for skeletal metastases in the appendicular skeleton from 1st January 2003 to 31st December 2013. We collected intraoperative (surgical duration, extent of bone resection and blood loss), demographic (age, gender, ASA - and Karnofsky score) and disease-specific (primary cancer) variables. An association with 30-day mortality was addressed using univariate and multivariable analyses and calculation of odds ratios (OR). Results: ASA score 3 + 4 (OR 4.16 (95% C.I.: 1.80;10.85)) and Karnofsky performance status below 70 (OR 7.34 (95% C.I.:3.16;19.20)) were associated with increased 30-day mortality in univariate analysis. This remained unchanged in multivariate analysis. No intraoperative parameters were found to be associated with 30-day mortality. Conclusions: The 30-day mortality in patients undergoing surgery for MBD is highly dependent on the general health status of the patients as measured by the ASA - and Karnofsky score. Intraoperative parameters, measured by surgery time, blood loss and degree of bone resection were not associated with 30-day mortality.

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Room: Tintoretto 2

Abstract no.: 43271

CANCER REHABILITATION OF CHILDREN WITH MUSCULOSKELETAL SEQUELAE OF SOLID MALIGNANT TUMORS

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Introduction: cancer rehabilitation is becoming more of a focus for the field of physiatry due to increased longevity and the side effects of treatment. Methods: chart analysis was conducted on 53 children at the mean age of 12,02 years, 30 males, 23 females treated by chemotherapy, radiotherapy, oncologic surgery, included limb-sparing procedures. 21 patients underwent courses of preoperative inpatient physical therapy, at the neoadjuvant part of special treatment, 33 patients underwent courses of postoperative inpatient physical therapy at the adjuvant part of special treatment, 30 patients underwent courses of physical therapy during remission. The most common late effects we had observed were: scoliosis, muscular hypoplasia, osteopenia, limb-length discrepancy in spite of usage of growing endoprosthesis, poor joint movement. 14 patients had more, than 5 late effects. This study evaluated the short and long-term changes in physical fitness of a child with a childhood malignancy; using an individual rehabilitation program, consist with combined physical exercise, kinesiotherapy, aquatic rehabilitation and orthopaedic correction implemented during and shortly after treatment. Training is performed individually, under the supervision of an experienced paediatric physical therapist. Results: the individual rehabilitation programs are well tolerated. We suggest that the usage an individual rehabilitation program can decrease pain, improve muscle strength and range of motion in joints, an increased supply of blood to the muscles, higher muscle metabolism, and more circulation in the limbs, improves tissue nutrition and helps the healing process.

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Room: Tintoretto 2

Abstract no.: 44119

EVALUATION OF NEOADJUVANT CHEMOTHERAPY RESPONSE IN MALIGNANT BONE TUMORS WITH PET/CT AND DIFFUSION-WEIGHTED MR

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Introduction: Response to neoadjuvant chemotherapy is a prognostic factor for malignant bone tumors; however, this response can be determined after surgical resection. If we could predict histologic response before surgery by imaging findings, it might be helpful for the planning of surgeries and chemotherapies. We evaluated the usefulness of PET/CT and diffusion-weighted MRI. Methods: We reviewed 14 patients (3 males, 11 females, mean age 20.3 y.o.) with malignant bone tumor treated with neoadjuvant chemotherapy and surgery from 2008 to 2015. The malignant bone tumor were osteosarcoma in 7, Ewing sarcoma in 4, MFH of bone in 2, and extraosseous osteosarcoma in 1. Maximum standardized uptake value (SUV) and the mean apparent diffusion coefficient (ADC) values were measured before (SUV1 and ADC1) and after neoadjuvant chemotherapy (SUV2 and ADC2). The bone tumors were divided into two groups: poor-responder group was comprised of tumors with less than 90% necrosis after treatment and good-responder group of tumors at least with 90%. Results: 9 cases were good-responder, and 5 cases were poor-responder. The average SUV1 of good-responder group was 5.51, SUV2 was 1.99. The average SUV1 of poor-responder group was 13, SUV2 was 9.93. SUV2 and SUV change ratio were correlated with the effect of chemotherapy. The average ADC1 of good-responder group was 1023, ADC2 was 1632. The average ADC1 of poor-responder group was 1449, ADC2 was 1473. ADC were not correlated. Conclusion: We found that PET/CT could be used to predict histologic response to neoadjuvant chemotherapy in malignant bone tumors.

Date: 2016-09-08
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Time: 16:00 - 17:30
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Abstract no.: 44595

PLK2 PHOSPHORYLATES AND INHIBITS ENRICHED TAP73 IN HUMAN OSTEOSARCOMA CELLS

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TAp73, a member of the p53 tumor suppressor family, can substitute for p53 function, especially in p53-null and p53-mutant cells. However, TAp73 enrichment and phosphorylation change its transcriptional activity. Previously, we found that the antitumor function of TAp73 was reactivated by dephosphorylation. Polo-like kinase 2 (PLK2) plays an important role in bone development. Using a biological information database and phosphorylation prediction software, we hypothesized that PLK2 phosphorylates TAp73 and inhibits TAp73 function in osteosarcomas. Actually, we determined that PLK2 physically binds to and phosphorylates TAp73 when TAp73 protein abundance is up-regulated by cisplatin. PLK2-phosphorylated TAp73 at residue Ser48 within the TA domain; phosphorylation of TAp73 was abolished by mutating this residue. Moreover, PLK2 inhibition combined with cisplatin treatment in osteosarcoma Saos2 cells up-regulated p21 and puma mRNA expression to a greater extent than cisplatin treatment alone. Inhibiting PLK2 in TAp73-enriched Saos2 cells resulted in inhibited cell proliferation, increased apoptosis, G1 phase arrest, and decreased cell invasion. However, these changes did not occur in TAp73 knockdown Saos2 cells. In conclusion, these findings reveal a novel PLK2 function in the phosphorylation of TAp73, which prevents TAp73 activity in osteosarcoma cells. Thereby, this research provides an insight into the clinical treatment of malignant tumors overexpressing TAp73.

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Abstract no.: 44712

EXTRACORPOREAL IRRADIATED BONE IN LIMB SALVAGE SURGERY – A USEFUL BIOLOGICAL OPTION

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Objectives: Assess oncologic safety and functional outcomes of reconstruction with extra corporeal irradiated bone after resection of diaphyseal sarcomas. Methods: Between Jan 2006 and Dec. —2013, 74 patients with diaphyseal sarcomas underwent reconstruction with extra corporeal irradiated bone (radiated with 50 Gy) after resection. Mean age was 17.4 yrs (1 – 46 years). There were 17 females and 57 males. Bones involved were: femur 47, humerus 6, tibia 20 and ulna 1. Etiology included: osteosarcoma 39, Ewing's 32 and adamantinoma 3 . Mean resection length was 19 .4cms (6 – 32 cms). Based on surgeon preference various internal fixation devices were used. Morcellised allograft was used at the diaphyseal junctions in 42 cases based on surgeon preference. Results: Mean time to union at metaphyseal sites was 29 weeks and at diaphyseal sites was 46 weeks. 25 patients needed a repeat surgery to achieve union. 3 patients had infection and, 4 developed a fracture in the ECRT bone. There were 6 local recurrences, all in soft tissue. Ultimately 7 patients had to have the radiated bone removed for various reasons. There was no difference in union times based on choice of implant for fixation. or with/without the use of bone grafts. At a median follow up of 32 months the mean MSTS score was 27. Conclusion: Limb salvage with extra corporeal Irradiated bone for diaphyseal sarcomas is an oncologically safe biological reconstruction option with good functional outcomes.

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Abstract no.: 43468

WHAT NEXT IF HISTOLOGY FAILS OR INCONCLUSIVE

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What next if misleading histology? Mostly we are able to treat with confidence after histopathology report. When biopsy not helping or it does not correlates with clinical findings or Patient not responding to treatment as per report. This is study of 50 cases where biopsy did not help either from beginning or after treatment. In these cases was found that most of the cases biopsy report was correct but the patient did not respond because in infective cases the patient was treated with improper antibiotic as insufficient dose or the bacteria resistant or was mixed infection. In few patients response altered due to unknown factors like altered response due to HIV, Chemotherapy, steroids at site of Radiotherapy or two pathologies by nature may closely mimic specially in bone. In some solved after the repeat biopsy as open biopsy and by two pathologist examination. But in few patient diagnosed when the disease appeared at other site and biopsy taken from that. Then realized that at parent site two pathologies existed and malignancy diagnosis after whole lesion examined. Inexperienced pathologist and junior surgeon blamed as improper section, wrong site and storage. So after biopsy, surgeon must watch progress and should not allow problem to deteriorate. One be vigilant when suspecting infective and it may be a malignant gets missed and from radical cure one gives palliative & in infective from complete resolution to crippling sequelae tuberculosis. After biopsy, constantly watch progress otherwise situation will worsen. Even tumor tissue induces inflammation.

Date: 2016-09-08
Session: Short Free Papers - Tumours
Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 44149

CLINICAL AND PATHOLOGIC RESULTS OF DENOSUMAB TREATMENT FOR GIANT CELL TUMORS OF BONE. PROSPECTIVE STUDY ON 14 CASES

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Introduction: Giant cell tumor of bone is primary osteolytic benign, aggressive tumor bone. Surgery is commonly used treatment; however, recurrence remains problem. With discovery of RANKL, responsible for the formation of osteoclastic cells, human monoclonal antibody-Denosumab were formed and used for treatment of GCT. The aim of this study was to evaluate clinical and pathologic results of denasumab in treatment of GCT, evaluate adverse effect profile and recurrence rate. Material-Method: Fourteen lesions of 13 patients diagnosed as GCT enrolled the study. The mean age was 38.3 years. Subcutaneous Denosumab (120 mg) was given every 4 weeks (with additional doses on days 8 and 15 in cycle 1 only) to patients. Patients were radiologically evaluated for response of the tumor. Pain and functional status were evaluated VAS and MSTS. Adverse effects investigated after each cycle. Results: There were 5 men and 8 women. Mean follow-up was 17 months. One lesion was Campanacci grade 1, 8 were grade 2, and 5 were grade 3.Eight of lesions were recurrent, and remaining primary lesions. After average 9 cycles, all tumors underwent radiologic regression. Ten lesions were removed surgically. More than 90% of giant cells were found to be pathologically regressed in all specimens. On the last follow-up, VAS was 1 and MSTS score was 87%.46% of patients reported fatigue, joint and muscle pain after injections and mild hypocalcaemia seen in 1 patient. Conclusions: Denosumab has been shown to be a successful drug in treatment of GCT. We recommend that denosumab should be used as neoadjuvant in patients in all recurrent lesions, grade 2 lesions with high surgical risk, grade 3 lesions and metastatic cases of GCT.

Date: 2016-09-08
Session: Short Free Papers - Tumours
Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 45216

PREOPERATIVE PLASMA YKL-40 LEVELS IN BONE AND SOFT TISSUE SARCOMA PATIENTS

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Aim: Identify if the glycoprotein YKL-40 in plasma can serve as a marker for prediction of the outcomes in patients with sarcomas. Methods: 67 patients (mean age 61 (29-90) years, F/M= 34/33) with bone or soft tissue sarcoma of the extremities, spine or trunk wall treated by surgical excision August 2009 to April 2012 were included in the study. All patients had a blood sample taken at the day of surgery, and the YKL-40 concentration in plasma were measured by ELISA. Patient files were reviewed, and patient overall survival was updated January 2016 from the Danish Civil Registration System. Statistics: Kaplan Meier survival analysis with log rank test. Results are given as mean with total range and since YKL-40 is slightly influenced by age, the adjusted YKL-40 percentiles were calculated. Results: During the follow-up period 13 patients had a local recurrence of the tumor, and 21 developed metastases. The probability of 5-year survival for all sarcoma patients (n=67) was 64%, and the mean plasma concentration of YKL-40 was 147 microg/L (18-576 microg/L). Patients with a YKL-40 concentration below the mean (n=52, 5-year survival 76%) had a better survival (p=0.001) than patients with YKL-40 concentration above the mean (n=15, 5-year survival 15%). Patients with an age adjusted plasma YKL-40 value <95 percentile (n=55, 5-years survival 73%) had a better survival (p=0.003) than patients with a value ≥95 percentile (n=12, 5-years survival 17%). Conclusions: A high YKL-40 plasma concentration measured preoperatively in sarcoma patients are connected to a poor overall survival.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 45226

REVERSE SHOULDER ARTHROPLASTY AND LATISSIMUS DORSI TRANSFER - WHAT CAN WE EXPECT?

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Introduction: RSA cannot restore active external rotation. The combination of latissimus dorsi transfer with RSA has been reported to restore both active elevation and external rotation. Methods: We present a literature review and own results. Between 2004 and 2010, 13 patients (13 shoulders) were treated with RSA in combination with latissimus dorsi transfer in a modified manner. Results: The overall mean Constant-Murley Shoulder Outcome Score improved from 20.4 to 64.3 points ($p < 0.001$).The average degree of abduction improved from 45° to 129° ($p < 0.001$), the average degree of anterior flexion improved from 55° to 138° ($p < 0.001$) and the average degree of external rotation improved from -16° to 21° ($p < 0.001$). Conclusions: This modified technique, which avoids cutting the pectoralis major tendon and involves harvesting the tendon together with a small piece of bone, leads to good or even better functional results compared with the results reported in the literature, and also has high patient satisfaction and low failure rates.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44880
IS THE IRREPARABILITY OF ROTATOR CUFF TEARS PREDICTABLE?

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Preoperative predictability of irreparable RCTs is important to better inform patients of treatment outcomes and for surgeons' preoperative planning. To evaluate predictive factors of irreparability preoperatively in patients with RCTs, 863 patients were divided into two groups: Group 1 (375 males and 367 females, a mean age of 58.1 years) had reparable RCTs and group 2 (48 males and 73 females, a mean age of 66.4 years) had irreparable RCTs. Age, gender, chronic pseudoparalysis (CPP), tangent sign, symptom duration, medial-lateral (ML) and anterior-posterior tear size (AP), tendon involvement and Goutallier stage of supaspinatus (SST), infraspinatus (IST), and teres minor (Tm) were analyzed. Overall irreparability rate was 14.0%. Univariate analysis showed age (p=0.000), female (p=0.027), CPP (p=0.000), tangent sign (p=0.000), tear size (ML and AP) (p=0.000), and tendon involvement (SST and SSc, SST and IST, and SST, SSc, and IST) (p=0.000), Goutallier stages 3 and 4 of the SST (p=0.047), Goutallier stages 3 and 4 of the IST (p=0.000), and Goutallier stages 3 and 4 of the Tm (p=0.000) were associated with irreparability. In multiple logistic regression analysis only age, CPP, tangent sign, ML tear size, tendon involvement of all three tendons, Goutalllier stage 3 and 4 for the SST were statistically significant factors of irreparability with odds ratio of 1.041 (p=0.049), 9.117 (p=0.000), 24.183 (p=0.000), 1.126 (p=0.000), 9.651 (p=0.000), 0.53 (p=0.000). Age, CPP, tangent sign, ML tear size, tendon involvement (SST, IST, and SSc), and Goutallier stage 3 and 4 of the SST were independent prognostic factors of irreparability.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 43272

OUTCOMES OF ARTHROSCOPIC-ASSISTED LATISSIMUS DORSI TRANSFER FOR IRREPARABLE MASSIVE ROTATOR CUFF TEARS

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Background: Arthroscopic-assisted latissimus dorsi tendon transfer (LDTT) has been recently introduced for treatment of irreparable, postero superior massive rotator cuff tears (MRCTs). We evaluated the functional outcomes of arthroscopic-assisted LDTT and we also investigated the role of clinical and demographic parameters on postoperative ROM (range of motion), the Constant and Murley score (CMS), and satisfaction as possible outcome predictors. Materials and Methods: The study reviewed 86 patients (aged 59.8±5.9 years) who underwent an arthroscopic-assisted LDTT after 36.4±9 months of follow-up. Particularly in 14 patients (16.3%) LDTT was performed after a failed arthroscopic rotator cuff repair. The CMS was used to assess patients’ functionality preoperatively and at follow-up. A subgroup analysis of patients was performed to test the influence of gender previous rotator cuff repair, patient age at surgery, preoperative total CMS and length of follow-up on postoperative outcomes. Results: As a group, the CMS improved with surgery from 35.5±6.1 to 69.5±12.3 ($P<0.001$). A lower preoperative CMS and a previous failed rotator cuff repair resulted in lower postoperative range of motion ($P=0.044$ and $P=0.007$, respectively) and CMS ($P=0.042$ and $P=0.018$, respectively). A previous rotator cuff repair resulted in lower satisfaction with surgery ($P=0.009$). Gender and age did not affect the clinical outcomes. Conclusions: Our results support the effectiveness of arthroscopic-assisted LDTT in the treatment of patients with an irreparable, postero superior MRCTs in pain relief, functional recovery, and postoperative satisfaction. Patients with lower preoperative CMS and a history of failed rotator cuff repair have a greater likelihood of having a lower clinical result.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44740

RADIAL HEAD RESECTION AND HEMI-INTERPOSITION ARTHROPLASTY IN MASADA TYPE II DEFORMITY IN PATIENTS WITH MULTIPLE OSTEOCHONDROMAS; EVALUATION OF A NEW SURGICAL TECHNIQUE

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Introduction: Forearm osteochondromas and deformities are found in the vast majority of patients with Multiple Osteochondromas (MO). In these patients with a Masada type II deformity, the radial head is chronically dislocated from the elbow joint resulting in pain, decreased ROM, instability and cosmetic deformity. The purpose of this study was to evaluate the results of a new surgical technique for Masada type II deformity in MO patients. Methods: We conducted a prospective cohort study with 14 MO patients; mean age was 13 years (range 8-25 years). The surgical technique comprised: radial head resection, hemi-interposition arthroplasty from the extended capsule and the inner layer of the common extensor tendon origin, LUCL augmentation or LUCL graft if indicated, combined with hinged elbow external fixator for 6 weeks or plaster cast. Minimal follow-up was 12 months (range 12-46 months) for evaluation of pain, ROM, stability, patient QoL and radiologic appearance of the elbow and wrist. Additionally, patient related outcomes measures concerning functional outcome and QoL were obtained by questionnaires. Results: No procedure-related complications were observed. Correction osteotomy gave a poor result and recurrent dislocation with aggravation of the deformity occurred. We document major improvements in pain, ROM, stability and patients QoL. Conclusion: In Masada type II MO patients, radial head resection, interposition arthroplasty, radiohumeral ligament augmentation and temporary stabilisation with a hinged external fixator led to improvements in pain, ROM, stability and patient QoL. It is a distinct option for chronic radial head dislocation in patients after levelling procedure of the forearm.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 43480

INCREASING INCIDENCE OF DISTAL BICEPS RUPTURE – OUTCOMES FOLLOWING SURGICAL REPAIR WITH A SINGLE INCISION TECHNIQUE

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Introduction: Rupture of the distal biceps tendon usually occurs in active, middle aged men during eccentric loading. Surgical fixation maximises functional outcome, however nerve injury is a potential complication. We evaluated a cohort of patients who underwent surgery at a UK District General Hospital. Method: A retrospective review of patients undergoing distal biceps repair over a period of 30 months. Patient records were reviewed to establish demographics, surgery performed and outcome. Results: 24 patients, all male, age 30-65, (mean=43). All underwent repair acutely. 23/24 (96%) were via a single incision technique; two incision technique was used in 1. The incidence is 2.6 per 100000 in this series. No patients were diabetic, one patient had used anabolic steroids, one patient was a smoker. 22/24 (92%) undertook regular physical activity either as manual employment or recreationally. 2 post-operative infections. There were no documented re-ruptures. Three (13%) patients had mild limitations to extension, and two (8%) had limited reductions in supination at follow up. 7/24 (29%) exhibited sensory compromise post-operatively. Five were classified as lateral cutaneous antebrachial nerve neuropraxias and were managed expectantly. One patient had numbness distal to a keloid forming scar, and one had altered ulnar nerve function. Conclusion: Biceps rupture is an injury usually occurring in males from the fourth decade of life. Incidence was increased compared to previously reported figures. The distal tendon can be repaired successfully via a single incision technique. Patients must be counselled carefully regarding 1/3 chance of sensory disturbance related to iatrogenic nerve injury.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 45640

COMPARATIVE STUDY OF PLATING VERSUS CONSERVATIVE TREATMENT IN MID SHAFT FRACTURE OF CLAVICLE

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Objective: fracture mid shaft of clavicle have traditionally been treated by conservative means with good outcome. ORIF with plating is an upcoming option to improve outcome further aim of this study is to compare the outcome of antero superior plating with conservative treatment. Material & methods: the study was conducted over a period of one year, with 50 skeletally mature closed mid shaft fractures included. Alternate patients were operated using 3.5 mm antero superior lcp. The fucnctional outcome was evaluated by constant and murley score at the end of 3 months from injury. The fracture union time and associated problems were also compared.results: in the operative group 19 patients(76%) had excellant functional outcome, good fucntional outcome in 4 patients(16%) and fair functuonal outcome in 2 patients(8%). in the operated group 2 patients(8%)had hypertrophic skin scar and in 2 patients(8%) plate prominence occured. in 1 patient(4%) infextion (superficial infection) occured.in 1 patient(4%) plate loosening occured.im 2 patients(8%) delayed union occurred which went for malunion and in in 1 patient(4%) plate breakage occured.in the non-operative group 7 patients (28%) had good functional outcome, fair fucntional outcome in 8 patients(32%) and poor functional outcome in 10 patients(40%).conclusion: in this study early primary plate fixation of comminuted mid shaft clavicular fracture results in improved patient-oriented outcomes, improved surgeon-oriented outcome, earlier return to function, and decreased rates of nonunion and malunion.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 45356
ARTHROSCOPIC RECONSTRUCTION OF ANTERIOR INSTABILITY WITH ALL-SUTURE ANCHORS

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Introduction: The purpose of this large study was to evaluate the 2 year outcomes of a new method of soft tissue fixation in shoulder instability reconstruction. The primary hypothesis was that the clinical outcome of arthroscopic reconstruction of anterior shoulder instability with all-suture anchors would be at least equivalent to previously reported outcomes of arthroscopic repair of anterior shoulder instability using other forms of anchor fixation. Methods: This was a retrospective review of 90 consecutive patients with anterior shoulder instability who had surgical reconstruction using all-suture anchors (Conmed Y-Knot 1.3mm anchors) loaded with a high strength poly suture. Patients with atraumatic instability were excluded from the study. All patients' surgeries were performed by the senior author and the same suture anchor was used in all 90 cases. Patients' clinical outcomes were tracked at one week, 6 weeks, 3 months, 6 months, and 2 years postoperative. Primary outcome measures used were the Constant score and the Western Ontario Shoulder Instability Index. All patients included in the study had a minimum of 2 years follow-up and the final enrolled count was 86 shoulders in 86 patients. Results: Average patient age was 23 years with 67% male and 23% female. We had 6/86 patients with clinically significant recurrent instability or redislocation, resulting in a 7.0% failure rate. We had 90% of patients report returning to the same or better functional level as pre-injury at 1 year postop. Patients maintained statistically significant improvements in Constant and WOSI scores 2 years after the index surgery.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44373

AN INNOVATIVE APPROACH FOR INTRAMEDULLARY NAILING FOR CLAVICLE FRACTURES – A CASE SERIES

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Introduction: Clavicle fractures accounts for 3-5% of total fractures of the body. TENS nailing have been used as a fixation for clavicle fractures but due to complication of migration of nail it has been discontinued. So, we here have a different approach for fixation of fracture with TENS, which avoids complication of migration and also provide three-point bony fixation with better union rates. Materials and Methods: Prospectively 50 random patients with mid-shaft clavicle fractures with maximal displacement were included in the study. All the patients were managed with this innovative technique with TENS nailing. The patients were called for follow up at 1 week, 2 weeks, 4 weeks, 6 weeks and 12 weeks. On follow up patients were assessed radiologically and clinically. Results: There was union seen in 100% patients with average time of 10.25weeks. The nail was removed in all cases after the radiological union. The average Constant Murley score on 8 weeks was 96.8. There were no complications. Conclusion: Intramedullary nailing is very good approach for fixation of clavicle fractures. The approach we used is very safe and easy approach for fixation for mid-shaft clavicle fractures. It avoids the intra-thoracic migration complication and other complications of TENS nailing.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 45472

IS THERE A PLACE FOR CONSEVATIVE TREATMENT OF OLD SHOULDER DISLOCATIONS OBSERVED IN AFRICA?

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Introduction. In Africa, it is still possible to observe old shoulder dislocations. This delayed diagnosis is not only due to poverty alone but also to cultural beliefs. It is in these conditions that we received patients to whom we performed first orthopedic treatment and surgical treatment in case of failure. The purpose of this study is to assess the effectiveness of this therapeutic attitude. Methods. The open reduction was proposed in case of failure of orthopedic method. This reduction is achieved by classical external manipulation under general anesthesia. The contention was made of a bandage for 3-6 weeks. After that early intensive rehabilitation was undertaken. Functional results are determined by the SANE score. Results. From 1998 to 2012, we have received and processed 20 dislocations of the shoulder (80% of all dislocations observed). They were 11 male patients for 9 female patients. The average age of patients was 39.3 years. There were 19 anterior dislocations versus 1 posterior dislocation. Pure dislocations accounted for 14 cases (70%). Orthopedic treatment has involved 17 cases and 3 cases open reduction. Some complications were reported namely a spiral fracture of the humerus. The average functional score SANE was 56.75. Discussion. Our results were compared with particularly rare African publications. Conclusion. This study taught us that it is possible, by force constraints and practical difficulties in Africa, to get encouraging results by the only accessible orthopedic treatment with minimal complications.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44850

HYDRODILATATIONS FOR FROZEN SHOULDER: DOES IT REALLY WORK?

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Introduction: Frozen shoulder (FS), also known as adhesive capsulitis is a highly disabling disease characterized by spontaneous onset of shoulder pain with progressive limitation of glenohumeral movement. There are several treatment options (physical therapy, corticosteroids, hydrodilatation, mobilization under anaesthesia and surgery), however, there are few studies with high quality evidence to endorse them. Aim: to analyse our patients with primary FS undergoing shoulder hydrodilatation. Methods: Retrospective analysis: 100 cases with primary FS treated between 04/2011 and 05/2015. Demographics: 58 women (58%) with mean age 56 (range,37-70), 60% dominant arm, 27% of our patients had diabetes. All the patients were assigned to receive x–ray guided gleno-humeral hydrodilatation. Shoulder range of motion (ROM), the Constant score(CS) and visual analogue scale (VAS) for pain was measured before hidrodilatation, and at 1, 3, 6 months and follow up. Statistics were done.Results: 89% of the patients yielded a significantly better functional outcome at 3 months and maintained 26 months follow up (range, 7- 55). External rotation significantly improved from 22º (range, 0-30) to an average of 53º (range, 40-80) ($p<0,001$), flexion got better in 46º and and pain significantly decreased an average of 5 points on VAS scale until 2 (range, 0-5) ($p<0,01$). The CS significantly increased from 42(SD±16) before hydrodilatation to an average of 78 (SD± 15) at follow up ($p<0.003$). Conclusion: A single intraarticular hydrodilatation provided satisfactory functional outcomes and early pain relief (1 month) in symptomatic FS patients that improved at 3 months and slightly got better at 6 months and follow-up.

Date: 2016-09-09
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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44368

IDIOPATHIC ADHESIVE CAPSULITIS IN THE DIABETIC SHOULDER - RESULTS OF A META-ANALYSIS

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Background: Adhesive capsulitis results in progressive painful restriction in the range of movement of the gleno-humeral joint and can reduce function and quality of life. It has several associated risk factors including diabetes mellitus, thyroid dysfunction and previous trauma. There is a variation in the reported prevalence of idiopathic adhesive capsulitis (IAC) within the diabetic population. We aimed to extimate through a meta-analysis, the prevalence of (IAC) in diabetes and examine whether it is influenced by insulin therapy and diabetes subtype. The prevalence of diabetes in a population presenting with IAC is also determined. Methods: We undertook a literature search was conducted on 12th February 2014 for terms regarding adhesive capsulitis and diabetes on Embase and Pubmed NCBI. Results: Of 5411 articles identified, 18 were selected for analysis. Meta-analysis showed that patients with DM overall were more likely than controls (95% CI 3.2-7.7, P<0.001) to have IAC. The overall prevalence of this in diabetes was determined as 13.4% (95% CI 10.2-17.2%). Comparison of the IAC prevalence in patients on insulin vs. other treatments did not show a significant difference between the two (13.5%, 95% CI 8.3-21.3 vs. 12.3, 95% CI 5.9-23.6, Q=0.05, P=0.8). Meta-analysis showed that the prevalence of diabetes in the IAC population was 30% (95% CI 24-37%, Q=10.4, df4, P=0.034, I2=61.6, tau2=0.08). Conclusion: A higher prevalence of IAC exists in the diabetic population and equally a high prevalence of diabetes is present in the population with IAC. Diabetic screening should be a considered in patients presenting with IAC.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44093

OUTCOMES OF DISTAL CLAVICLE FRACTURES BY BRIDGING HOOK-PLATE FIXATION

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Purpose: The purpose of this study was to analyze clinical outcomes of the patients with distal clavicle fractures treated by using bridging hook-plate. Methods: 38 patients with distal clavicle fractures treated by bridging hook-plate internal fixation over the acromioclavicular joint were the subjects of this study. There were 5 females and 33 males whose average age was 40.2 (14-79) years. The average duration until operation was 11.1(3-26) days. Those cases were classified according to Craig classification; 12 patients in type 2A, 21 in type2B, 5 in type3. Rib fractures was observed in 4patients and lumbar fractures in 1 patients preoperatively. The clinical outcomes were evaluated by the UCLA shoulder score, the period of the bone fusion and complication. Results: The mean follow-up period was 12.6 (7-26) month. The mean UCLA score was 33.9 points (31-35) postoperatively. All patients obtained bone union and average period of the bone union was 2.7(2-5.5) months. The mean duration until removal of the implant was 5.6 months. Cutout of the hook were observed in 5 patients and the enlargement of acromial bone hole of the hook in 5 patients postoperatively. Conclusion: This study suggests that patients with distal clavicle fractures can obtain satisfactory clinical results by using bridging hook-plate internal fixation over the acromioclavicular joint. However, there were some complications such as cutout and enlargement of acromial bone hole of the hook. Reviewing about postoperative rehabilitation and duration of removing the implants can improve these complications.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 43548

MIGRATION OF METAL SUTURE ANCHORS USED FOR BANKART REPAIRS TO THE EXTRAARTICULAR REGION

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Backround: Anterior shoulder instability is a common orthopaedic problem, and arthroscopic bankart repair has been shown to effectively restore stability and prevent recurrence. However, despite success with this surgical technique, there are several clinically relevant complications associated with arthroscopic techniques for anterior shoulder stabilization. In this case we presented migration of anchor to the extraarticular region. Method: A 37 years old male presented our clinic three years following arthroscopic bankart procedure. He stated that although he had not experienced any new shoulder dislocation since his surgery he had never been pain free. Arthroscopic debridement performed 2.5 years after the primary surgery. But again his pain was not cancelled with this operation. Range of motion of his shoulder was limited and painful. Result: In physical examination there was a painful and tenderness area at the medial aspect of his arm with palpation. In radiograph two metal suture anchors were found in the subcutaneous tissue of posteromedial arm. These two anchors with pseudocapsule were removed easily with operation. Conclusion: Metal suture anchors used for bankart repairs can fail, loosen, migrate or be left proud. Following arthroscopic bankart procedure if there is any pain during rehabilitation radiograph should be performed immediately. Using bioabsorbable suture anchors can be reduced this type migration problems.

Date: 2016-09-09
Session: Short Free Papers - Shoulder
Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 43370
EARLY MOBILIZATION AFTER RADIAL CAPSULOTOMY IN ADHESIVE CAPSULITIS

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INTRODUCTION: Radial capsulotomy allows significant gains in amplitude treating adhesive capsulitis but get lost in the early postoperative days. A protocol for action to alleviate this limitation and achieve better outcomes were developed. MATERIALS AND METHODS: A radial capsulotomy and release of the rotator interval were realized in conservative treatment non responders. Interscalenic catheter was placed for neuromotor block in surgical time and held for five days to allow passive mobilization of shoulder, two sessions a day in the hospital, with maintenance of the rehabilitation program after discharge from the clinic. Range of motion was analyzed. RESULTS: Functional outcomes of 41 patients (26 women, 15 men) after the first 3 months were considered. Abduction increased from 75° to 132°, forward flexion from 93° to 143°, external rotation from -1,5° to 28° and internal rotation between the trochanter and buttock to L3-L2 level. DISCUSSION/ CONCLUSION: The progressive loss of range of motion, especially in the first months, requiring an energetic performance in passive and active mobilizations are difficult to reach because pain. Authors' goal was to develop a protocol for early intervention. The neuromotor block obtained by placing interscalenic catheter at the time of surgery allows the mobilization immediately, two times a day, without pain, and patient direct visualization of mobility, important to their self-motivation in the pursuit of goals maintenance of the same. Despite a regression arc mobility compared to the immediate postoperative period, the end results are good.

Date: 2016-09-09
Session: Short Free Papers - Hip
Time: 10:30 - 12:00
Room: Tintoretto 2

Abstract no.: 43165

ACCURACY OF COMPONENT ORIENTATION USING IMAGE-FREE NAVIGATION IN TOTAL HIP ARTHROPLASTY

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Introduction: Since 2011, we have used advanced version of navigation system (Orthopilot ver3.3 and Ortopilot THApro B/BRAUN-Aesculap, Germany). The purpose of this study was to assess the accuracy of this advanced-version navigation system in determining positioning of both cup and stem components by postoperative CT examination. Methods: 70 patients underwent primary THA using the imageless navigation Orthopilot THApro during December 2011 and March 2015. All THAs were implanted with cementless cup and stem. Intraoperatively, the cup inclination, anteversion, and stem anteversion and leg length discrepancy (LL) were measured by the use of the navigation system. Postoperative cup and stem alignment as well as change in LL were assessed using the 3D-Template system (Zed Hip, LEXI, Japan) on CT images. For evaluation of the accuracy of the navigation system, the intraoperative navigation results and the corresponding values obtained from the pre- and postoperative CT measurements were compared. Results: Intraoperative assessment by the navigation system indicated that the average cup inclination and cup anteverson values were 38.5° and 16.5° respectively, while the average stem anteversion was 17.6° and LL was 9.9mm. Postoperative CT evaluation indicated that calculated cup inclination, cup anteversion, and stem anteversion and LL values averaged 37.0°, 19.6°, and 21.8°, 10.8mm respectively. Discussion and Conclusion: The OrthoPilot image-free navigation system can achieve accurate positioning for both acetabular and femoral components, leg length; however, there are small amount of over- or underestimation for each of the parameters.

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Time: 10:30 - 12:00
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Abstract no.: 42912

TOTAL HIP ARTHROPLASTY IN 6,690 PATIENTS WITH INFLAMMATORY ARTHRITIS: IMPACT OF MEDICAL COMORBIDITIES AND AGE ON EARLY MORTALITY

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Introduction: We analysed early mortality after total hip arthroplasty (THA) in patients with inflammatory arthritis (IA) adjusting for medical comorbidities and socioeconomic background. Methods: Data on 6,690 patients with IA operated with a THA during 1992-2012 were extracted from the Swedish Hip Arthroplasty Register. Data on comorbidity, measured using the Charlson Comorbidity Index (CCI), and socioeconomic data were gathered from the Swedish National Inpatient Register and Statistics Sweden. The CCI was divided into low (0), moderate (1+2), and high (>2). Cox proportional hazards models were fitted in order to calculate adjusted hazard ratios (HR) of early mortality, with 95% confidence intervals (CI). Results: 25 patients (0.4%) died within 0-90 days, giving a 90-day unadjusted survival of 99.6% (CI 99.5-99.8). Comorbidity was associated with an increased risk of death within 90 days postoperatively (high vs. low CCI: adjusted HR 9.0 [CI 1.6-49.9]). There was a trend towards lower risk of death during the period 1999-2005 although patients operated during this period had more comorbidities than those operated 1992-1998. A large proportion of patients was re-admitted to hospital within 90 days after the index procedure (30.2%), but rarely due to cardiovascular reasons. Conclusions: Medical comorbidity and an age above 75 years are associated with a substantial increase in the risk of early death after THA in patients with IA. Awareness of potential risk factors may alert clinicians and thus improve perioperative care

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Abstract no.: 45466

TOTAL HIP REPLACEMENT: INCREASING FEMORAL OFFSET IMPROVES FUNCTIONAL OUTCOME

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Introduction: Despite the theoretical biomechanical benefits of medializing the acetabular component and increasing femoral offset (moment arm), there is limited literature to support any clinical effect. The aim of this study was to assess the independent effect of radiographic measures of implant position, relative to pre-operative anatomical assessment, on the functional outcome of total hip replacement (THR) according to change in the Oxford hip score (OHS) one year post surgery. Methods: After a power calculation 359 patients were recruited to the study and radiographic measures were performed by blinded observers. OHS were measured pre- and one year post-operatively. The relationship between the change in the OHS with femoral offset and length, and acetabular offset and height was assessed. Regression analysis was used to assess the independent effect of the four radiographic measured and when adjusting for confounding variables (age, gender, comorbidity and BMI). Results: Femoral offset was the only radiographic measure to achieved statistical significance (r=0.198 95% CI 0.063 to 0.333, p=0.004) in relation to clinical outcome, with increasing offset being associated with a greater improvement in the OHS. Conclusion: This study supports the long held biomechanical theory of medialisation of the acetabular component with compensatory increased femoral offset results in improved functional outcome, which we demonstrated using a hip specific validated outcome measure. The exact anatomic parameters of the components that relate to the optimal outcome of patients undergoing a THR remain to be identified.

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Abstract no.: 44749

MILD OR MODERATE RENAL INSUFFICIENCY DOES NOT INCREASE RISK FOR ACCUMULATION OF COBALT AND CHROMIUM IN PATIENTS WITH METAL-ON-METAL HIP REPLACEMENTS

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Introduction: Metal-on-metal (MoM) hip replacements are associated with elevated blood cobalt (Co) and chromium (Cr) levels. Concerns about renal insufficiency causing accumulation of systemic Co and Cr ions have been presented. Methods: We evaluated 180 patients with a unilateral 36mm head size stemmed MoM total hip arthroplasty from a single manufacturer. Blood creatinine and whole blood Co and Cr values were measured from all patients. Glomerular filtration rate (GFR) was calculated using “The Modification of Diet in Renal Disease” formula. Results: 74 patients had normal renal function (GFR >90), 90 had mild renal insufficiency (GFR 60-89), 15 had moderate (GFR 30-59) and one patient had end-stage renal insufficiency (GFR <15). There was no statistical difference in median Co and Cr between the groups. Further, no correlation between GFR and Co ($r = -0.108$, $p = 0.148$) or Cr ($r = -0.075$, $p = 0.317$) was seen. Multivariable analysis did not show increased risk of elevated metal ion levels for patients with mild (odds ratio 1.85, $p=0.243$) or moderate (odds ratio 0.75, $p=0.796$) renal insufficiency compared to patients with normal renal function. Conclusion: We did not observe association between GFR and blood metal ion levels. The systemic accumulation of Co and Cr due to renal insufficiency does not seem to be a major problem in patients with mild or moderate renal insufficiency. Our study did not include patients with severe or end-stage renal insufficiency, and association of GFR and whole blood metal ion levels should be further studied in those patients.

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Abstract no.: 44887

3D GAIT ANALYSIS REVEALS EARLY BENEFITS AFTER HIP ARTHROPLASTY

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Introduction: 3D gait analysis is not yet a standard tool although available since mid-1970s. Newer high resolution 3D-analysis could reveal minor alterations after surgical interventions. Methods: We analysed 15 patients (8 male, 7 female, mean 56.5years, SD9.8years) in the mean 12days (SD11.2days) before and 11 weeks (SD3.4weeks) after unilateral hip arthroplasty by 3D gait analysis on a walkway, ambulatory without crutches, and Harris-Hip-Score(HSS). Time- and distance-gait-parameters were preoperatively normal. The albavision™ 3D Motion System (single-frame-single-plane-calibration) and GaitLab™-Software were used for 3D Gait analysis using 15 reflective markers on the skin. The Friedman-Test was used to analyse the pre- and postoperative measurements statistically; Wilcoxon-Rank-Sum-Test was used to compare arthroplasty- to contralateral-side. Results and conclusions: The first analysis before surgery unveiled a HHS of 55.33 (mean,SD12.6) with an increase to 80.33 (SD8.12,p=0.001) at the second test. The HSS-Pain-Score improved by 17.93 (mean,p=0.001). The 3D gait analysis did not show – as expected due to preoperative values – neither significant changes in stride or step length, stand- or swing phase nor cadence. The walking-speed decreased as expected early postoperatively by 0.041m/s (p=0.019). Early 3D gait analysis unveiled a significant average-increase of hip-ROM in flexion/extension of arthroplasty side (6.76degree,p=0.003) as well as in abduction/adduction (1.21degree,p=0.02). Also the knee received an abduction-increase (3.48degree,p=0.011) and in rotation (4.64degree,p=0.017). Signs of compensatory movement: pelvic rotation was reduced (2.26degree,p=0.003), contralateral increase in hip-abduction/adduction (1.71degree,p=0.002) and knee-flexion/extension (2.30degree,p=0.036). 3D gait analysis is a valuable tool to reveal early minimal changes in joint motion in

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Abstract no.: 45245

PREDICTORS OF READMISSION AFTER HIP AND KNEE ARTHROPLASTY

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Background: Timely discharge in Enhanced Recovery Programmes (ERP) is considered beneficial to both patients and institutions. Prioritisation of turnover, however, may result in readmission of patients inadequately recovered or supported for discharge. Methods: All patients participating in our ERP, consisting of standardised, MDT-led preoperative counselling, surgical and anaesthetic techniques and postoperative therapy, were analysed. Relationships between readmission and potential risk factors were analysed using Chi-squared tests and Wilcoxan rank-sum tests (for non-parametric variables identified by the Shapiro-Wilk test). An optimised logistic regression model was constructed to eliminate redundancy and isolate the influence of individual predictors. Results: We analysed records from 2705 patients (knees). There were 121 readmissions (4.5%; 95% CI 3.7 – 5.3%). Readmission occurred more frequently in males ($p = 0.017$), with increasing age ($p = 0.001$), ASA grade ($p < 0.0001$) and after longer stays ($p < 0.0001$). No operative factors were significantly related to readmission. The optimised logistic regression model retained male sex (odds ratio 1.79), ASA grade (OR 1.89), age (OR 1.02/year), length of stay (OR 1.05/day) and psychiatric comorbidity (OR 2.01). Conclusions: All significant risk factors identified in our study could be recognised pre-admission. Multiple physical comorbidities were subsequently dropped by the model optimisation process, which retained ASA grade at a high level of significance, suggesting that ASA grade effectively summarises the risk of readmission incurred by physical but not psychiatric comorbidity, which was retained separately. Pre-admission identification of factors associated with readmission should prompt additional discharge planning and support.

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Abstract no.: 45340

OUTCOMES OF REVISION FOR RECURRENT PRIMARY TOTAL HIP REPLACEMENT DISLOCATION

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Background: The cause of recurrent dislocation following primary total hip replacement (THR) is multifactorial. A re-dislocation rate of up-to 34% following revision is reported in the literature. The aim of this study was to determine the overall outcomes, re-dislocation and complication rates following revision for recurrent THR dislocation. Methodology Patients who underwent revision for recurrent primary dislocation between January 2008 and January 2015 were identified using our database. We identified the date and type of primary implant, number and reasons for dislocation, revision implant details and complications. Results Over an 8-year period, 26 patients underwent revision surgery. Their primary THR was for osteoarthritis (22/26), fracture neck of femur (3/26) and AVN (1/26). The median age was 77 (68-85), median time to first dislocation was 78 months (23-160) and median number of dislocations was 3(2-4) with a mean follow-up of 18 months. Socket Mal-Orientation (10) and Abductor deficiency (5) were the main causes of recurrent dislocation. 23 patients (88%) underwent revision of both components, 1 patient underwent isolated cup revision and 2 patients had revision of acetabular-component with insertion of a-BioBall. There were no dislocations within 90 days of revision-surgery. Four-patients had late dislocations (3-recurrent, 1-isolated). Conclusion We report favourable outcomes for revision of both components for recurrent dislocation compared to the literature with no dislocations within 90 days. The overall late dislocation rate was 15.3%, however, these patients have settled following closed reduction. Due to its multifactorial aetiology, we recommend revising both components for recurrent dislocation.

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Abstract no.: 45255

UNDERSTANDING THE DIFFERENCE IN LENGTH OF STAY BETWEEN PRIMARY ARTHROPLASTIES OF THE HIP AND KNEE

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Introduction: Enhanced Recovery Programmes (ERP) are used to optimise efficiency and outcomes during hip (THR) and knee (TKR) arthroplasties. Anticipating length of stay (LOS) is critical for patient counselling and resource planning. Methods: A retrospective analysis of patients consecutively enrolled in an ERP was performed. The ERP used standard protocols for both THR's and TKR's, which were differentiated only in surgical procedure. Characteristics of THR and TKR groups were compared using tests of means or association. Survival analysis was performed to measure the difference in LOS between THR and TKR; multivariate analysis was performed to identify and adjust for confounding factors. Results: We analysed 2705 consecutive patients (1389 knees) admitted between January 2013 and April 2015. LOS was positively skewed with median 4 and 3 days for THR and TKR respectively ($p<0.0001$). TKR patients were more frequently male ($p=0.036$), younger ($p=0.0007$), of greater BMI ($p<0.0001$) and more frequently ASA grade 2-3 ($p=0.050$). Cox proportional hazards analysis demonstrated significant relationships between LOS and operation (TKR hazard ratio for discharge 1.13), age (HR 0.97 per year), male sex (HR 1.25), BMI < 19 (HR 0.49), and ASA 2, 3 and 4 (HR 0.81, 0.49 & 0.36 respectively). Conclusions: In our ERP, LOS was 1 day longer for THR than TKR. After adjustment for confounding factors TKR patients remain 13% more likely to be discharged on any given day following surgery. ERP should incorporate minimisation of modifiable factors which increase LOS, while taking account of proven longer LOS in THR when allocating resources.

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Abstract no.: 45236

FOR A CEMENTLESS HIP STEM, IS 100% PRESS-FIT ACHIEVED AND ESSENTIAL? A FINITE ELEMENT STUDY

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Objective: During THA, the femoral canal is manually broached until the broach contacts the femoral cortex. For the cementless stem, press-fit is used to obtain primary stability. The amount of contact obtained between the stem and the bone will vary between THA. It is known that contact is not achieved through the entire stem-bone interface, and only part of the stem-bone interface is in contact with a press-fit. Therefore, this study aimed at investigating the effect of the contact ratio (CR) and its location on the primary stability of a cementless stem. Methods: A finite element analysis (FEA) was carried out on a composite Sawbones® implanted with a straight taper cementless stem subjected to stair climbing. Micromotion was evaluated on 14 cases with different CR and locations, and compared the ideal case CR of 100%. Results: For all cases investigated, the average micromotion ranges between 27µm and 54µm and the maximum micromotion between 114µm and 210µm. However, the percentage of stem-bone interface with micromotion lower than 40µm (threshold value for osseointegration) is comprised between 25% and 57%. Conclusion: A CR of 100% is not necessary to obtain a good primary stability. Several configurations with CR lower than 100% and involving either the proximal or the cortical contact provide better primary stability than the full 100% contact. This study also suggests that with a low CR, the stem should be in contact with the cortex to ensure good primary stability.

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Abstract no.: 45301

EXCHANGE ARTHROPLASTY TO TREAT PERIPROSTHETIC FEMUR FRACTURES

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Introduction: Periprosthetic femur fractures usually are treated with re-implantation of a revision stem or by plating. Although plating is established complication rates up to 50 percent have been reported. One reason for this is that periprosthetic femur fracture may be a first sign of concealed or hitherto undiagnosed stem loosening. Results of exchange surgery using an extra-long stem or total femur replacement are retrospectively presented. Methods: 897 exchange operations including re-implantation of extra-long stem prosthesis or total femur replacement were analysed on the basis of medical records, a specially compiled questionnaire and radiographs. A representative group of 136 patients was examined after an average of 6.5 (2-13) years according to the Harris Hip Score method. Results: 78 percent had radiographic or clinical signs of stem loosening at the time of accident. Mean period between implantation and accident was 9.9 (0.08 to 28) years. 558 total exchanges, 247 stem exchanges and 92 revisions with re-implantation of a total femur replacement were performed. 25 percent were able to fully weight-bear directly and 75 percent did so after an mean period of 1.5 (0 to 4) months. Average Harris Hip Score was 86 points. Discussion: The fact that more than one third of the fractures occurred without significant trauma underlines the importance of this injury as a possible sign of undiagnosed or concealed loosening of the prosthesis stem. Re-implantation of a revision stem or a total femur replacement showed good functional results. Increasing degree of early or even immediate full weight bearing greatly facilitates postoperative Mobilisation.

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Abstract no.: 44278

VALIDATION OF THE RANGE OF MOTION WITH MRI OF THE HIP JOINT IN YOUNG ELITE SKIERS AND NON-ATHLETES

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Background: FAI is caused by an abnormal morphology (CAM and Pincer) in the hip. In previous studies examination of hips with CAM have shown decreased internal rotation, decreased passive flexion and a positive impingement test. The purpose of the present study is to validate how clinical tests in examination of the hip joint correlates with MRI verified CAM. Methods: The sample group (n=102) consisted of elite Alpine and Mogul skiers (n=75) and a non-athletic population (n=27). The hip joints were examined with MRI for measurements of CAM (alpha angle greater than 55°) and the Range of Motion of the hip was clinically examined in both supine and sitting positions. Results: There was a statistically significant difference between the CAM- and No CAM-group for impingement test, supine hip flexion, supine and sitting internal rotation with the lumbar spine in three different positions. There was a significant correlation between internal hip rotation and the position of the lumbar spine (neutral, extended or flexed). When tipping the pelvic forward (extended lumbar spine) the rotation of the hip decreases. When tipping the pelvic backward (flexed lumbar spine) the rotation increases. Conclusion: The most reliable clinical examinations for finding CAM are internal rotation in supine and sitting, hip flexion and the impingement test. Our finding suggests that examining the internal and external rotation of the hip joint might be more precise in sitting, as it’s easier to note the position of the lumbar spine.

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Abstract no.: 42947

MID-TERM RESULTS OF ECOFIT PRIMARY CEMENTLESS TOTAL HIP ARTHROPLASTY – COHORT ANALYSIS OF 618 HIPS WITH UP TO 6-YEAR FOLLOW-UP

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Introduction: EcoFit (Implantcast) hydroxyapatite coated cementless total hip endoprosthesis has been in use since 2004, but no independent clinical results have been published in scientific literature yet. Our aim was to analyze endoprostheses survival and revision rates of the entire cohort of EcoFit primary total hip arthroplasties (THA) at our institution since 2009. Methods: The study included entire cohort of 618 consecutive EcoFit total hip implantations performed at our institution by 18 different orthopaedic surgeons from April 2009 to July 2014. Data on primary operations and revisions were collected prospectively and analyzed 6 years after the start of the observation period with the minimum follow-up of 0.5 years. EcoFit THA survival analysis was performed with Kaplan-Meier and Cox multiple regression model was used to identify potential covariates. Results: In the mean follow-up period of 3.3 ± 1.5 years (range 0.5-6.5 years) nine patients were censored because of death for unrelated reasons. During the observation period 18 revisions were performed due to: early infection (6), femoral periprosthetic fracture (4), late infection (2), ceramic liner fracture in the acetabulum (2), hematoma (1), superficial infection (1), instability (1), and aseptic loosening (1). The 0-6 year survival rate with revision surgery for any reason as the endpoint was 97.1%. In Cox regression analysis there were no significant differences between the revised and non-revised group with regard to covariates of age, sex and implant side. Conclusions: The Ecofit THA shows excellent mid-term survival and revision rate, comparable to similar cementless metaphyseal hip endoprostheses.

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Abstract no.: 44212

RETENTION OF DUAL MOBILITY UHMWPE LINER: UNDERSTANDING OF WEAR MECHANISM

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Introduction: Retentive rim wear in UHMWPE could lead to a rare but specific complication of Dual Mobility THA called intra prosthetic dislocation. While comparing two explant populations, with or without IPD, our objective was to evaluate retentive rim wear in order to understand the wear mechanism. Methods: Were included 71 UHMWPE liners, divided into two groups: 41 liners with IPD and 30 liners without IPD. In order to quantitatively measure this retentive zone wear, a surface scanner following the fringe method was performed. The retentive rim was divided into two parts, an external side rubbing against the prosthetic neck and an internal side rubbing against the prosthetic head. Results: An IPD related liner had a rim total wear averaging around 41.3. Total wear from the rims having presented an IPD was significantly higher than that of explants without IPD. Median wear difference between both groups was 24,25 % [10,30; 37; IC 95%]. With a difference of 31.8 % median wear [14,51; 48,19; IC 95%], external side rim wear of liners with IPD was significatively superior to that of liners without IPD. In the same manner, internal side rim wear between both groups was 15.55 % [6,49; 25,40; IC 95%]. Comparatively, external wear was more important than internal wear in both groups ($p<0.01$). Discussion: Explant analysis, allowed demonstrating that the mechanism of IPD occurrence was linked to rim wear, especially on its external side. Retention wear in DM liners seemed linked to liner-neck contact. Optimizing this interface already allowed increasing liner survival.

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Abstract no.: 44870
THIRTY-DAY MORTALITY POST ELECTIVE HIP REPLACEMENT

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Introduction: In 2013 more than 75000 primary total hip replacements (THR) were performed in the United Kingdom and over 8500 revisions. THR as a significant surgery increases the short-term risk of mortality. The estimate pooled 30 days mortality was reported to be 0.30%. This study aimed to investigate the incidence and causes of death within 30 days following elective THR. Method: We have retrospectively analysed all deaths within 30 days post THR in all patients underwent elective surgeries in Wrightington hospital between March 2008 and April 2015. Data was requested from Coding, and business intelligent departments. All case notes, Electronic patient records (EPR) and Picture Archiving and Communications Systems (PACS) were reviewed for patients who died within 30 days. Global trigger tool (GGT) was used to scrutinize the data. Pre-operative co-morbidities, investigation, operative details, post-operative complications were analysed. THR for trauma was excluded. Results 8934patient underwent THR within the study period. The mean age of the deceased was 78 (57-90). Female: male ratio was 3:2. 15 cases died within 30 days post-operative, giving a mortality rate of 0.17%. The commonest documented cause of death was myocardial infarction (6 cases, 40% of deaths). Conclusion: Our 30 days mortality was 0.17% which was lower than those previously reported. To our knowledge this is the biggest series in the literature investigating 30 days mortality post THR in a single center. The data presented allows better understanding of main mortality risks associated with THR.

Date: 2016-09-09
Session: Short Free Papers - Knee
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Abstract no.: 44805

WHAT HAPPENS WHEN A SUCCESSFUL KNEE REPLACEMENT BECOMES OBSOLETE?

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Introduction: We performed two large cohort studies using the Duracon total knee arthroplasty system. Although the implant performed well both in terms of functional assessment and survivorship it was rendered obsolete by the manufacturer in 2009. We discuss the implications for our patients and question whether manufacturers should be obliged to provide support for redundant implants in future. Method: A total of 566 patients (644 knees) were recruited prospectively and followed up in a research clinic with KSS, WOMAC and SF-12 scoring preoperatively and 5 years postoperatively, survivorship calculated at between 8 and 10 years. Results: Functional and patient reported outcome measures showed significant improvements. Survivorship was 98.6% at 8 years for the uncemented cohort and 96.3% at 10 years for the hybrid cohort. Discussion: Despite our own excellent long term clinical and radiographic results and those reported elsewhere, Stryker decided in 2009 not to upclassify the Duracon Knee Replacement system and as a result Duracon devices no longer bear the CE mark. They can be used in the UK only for revision purposes and with MHRA approval obtained on a case-by-case basis. The reasons for discontinuing successful prosthetic designs are not published but engineering developments, perceived biomechanical and clinical advantages, international marketing strategies and profitability seem likely. We have encountered several patients suitable for tibial polythene insert exchange in whom clinical interactions have been complicated by the disclosure and process of obtaining MHRA approval. We question whether manufacturers should be obliged to support redundant or obsolete implants in future.

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Abstract no.: 45293

INFLUENCE OF AGE, GENDER, BMI AND PRIOR KNEE SURGERY ON PATELLAR HEIGHT IN PATIENTS UNDERGOING PRIMARY TOTAL KNEE ARTHROPLASTY

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Introduction: Alteration of patellar height is commonly encountered in total knee arthroplasty (TKA) and failure to address patella baja can result in suboptimal functional outcomes. Patients with lower preoperative patellar height are at risk of patella baja after TKA. It may therefore be prudent to evaluate preoperative patellar height, and to seek risk factors for patella baja. Purpose of this study was to assess the influence of age, gender, BMI and prior knee surgery on patellar height in patients undergoing primary TKA. Methods: 289 out of 319 (90.6%) patients who underwent TKA from 2012- 2014 were included. Preoperative patellar height was measured using Plateau-patella angle, Blackburn-Peel, Caton-Deschamps and Insall-Salvati ratios. Retrospective analysis was performed by multiple regression models, estimating odds ratios and their 95% confidence intervals. Results: Average age was 71 years (range, 49-90 years) with a mean BMI of 30.3 (range, 19.8- 52.0). 193 patients were female (66.8%) and 74 (25.6%) had at least one prior knee surgery. Multivariate linear regression analysis identified age, gender, BMI and prior knee surgery as independent variables affecting patellar height. Further, females >70 years old, with BMI >30 and history of prior surgery were significantly associated with patella baja (p-value <0.05). Conclusion: In patients undergoing primary TKA, patellar height is influenced by age, gender, BMI and prior knee surgery. Older age, female gender, high BMI and prior knee surgery are significantly associated with preoperative patella baja. These findings may aid surgical planning in order to avoid postoperative patella baja.

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Abstract no.: 44510

INCIDENTAL FINDINGS IN PLANNING MRI SCAN FOR PSI TKR – IMPORTANCE OF RADIOLOGY REPORTING

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PSI TKR utilizes rapid prototyping based on either MRI or CT scan of ipsilateral hip, knee and ankle. There is no universal policy regarding whether the plans should be reported by a radiologist. Many surgeons consider no need for formal reporting and these scans are sent to mould manufacturers to create 3-D model of the knee. We present out results on the incidental findings in these MRI scans highlighting the importance of radiologist report. We report a series of 400 patients who had MRI based PSI TKR under a single surgeon. A protocol was developed in collaboration with the local radiologist to have a simplified template for reporting. Any significant abnormalities are reported to the GP with suggestion for further review and or investigations if appropriate. This was found to be mainly related to prostate in males and uterus in females in most of the cases. Other findings included mass in the bowel, renal cysts and ovarian mass needing further review or investigations. One of the patient was found to have suspected tumour in the contralateral hip and had hip replacement in a tumour unit. We conclude that all the scans done for PSI should be reported by a radiologist and local protocols should be established. Without having such a protocol, important pathologies could be missed till such a lesion was identified at a later stage with a subsequent scan when the lesion (for example a tumour) may be at an advanced stage. This may have medicolegal implications.

Date: 2016-09-09
Session: Short Free Papers - Knee
Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 43086

INAPPROPRIATENESS OF EXPLICIT CRITERIA USED TO ASSESS THE APPROPRIATENESS OF INDICATION FOR TOTAL KNEE REPLACEMENT - A VALIDATION OF ESCOBAR'S CRITERIA IN INDIAN SCENARIO

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Escobar in 2003 proposed few criteria based on which appropriateness of indications for total knee replacement was done. A recent study from Virginia Commonwealth University revealed nearly 30% of total knee replacements (TKR) done in USA were inappropriate indications based on Escobar's criteria. Aim of this study is to validate Escobar's criteria in Indian patients. Methods: We reviewed the medical records of 100 patients who were seen in the outpatient clinic for knee pain and were diagnosed with osteoarthritis and were recommended total knee replacement. Details regarding the criteria for TKR were collected from the chart and a blinded researcher was asked to decide about the appropriateness of total knee replacement based on Escobar's Criteria. His recommendation was compared to the recommendation given by the consultant orthopaedic surgeon. Our study revealed that in nearly 20 patients there was mismatch between orthopaedic surgeon's recommendation and researcher's recommendations. However after discussion by a panel of experts, nearly 17 of those 20 cases were considered appropriate indications due to various clinical criteria including severe bone loss, fixed progressive varus deformity more than 15 degrees, fixed flexion deformity more than 20 degrees and very high risk of fall. Conclusions: Escobar’s criteria of severe pain and functional limitation for indications for total knee replacement should not be used as exclusive criteria for TKR by health agencies and insurance policy makers and more weightage should be given to other clinical criteria used by the surgeon including bone loss, severe deformities necessitating complex surgeries.

Date: 2016-09-09
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Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 44020

COMBINED ADDUCTOR CANAL BLOCK AND PERIARTICULAR INJECTION, BOTH WITH LIPOSOMAL BUPIVICAINE: AN INNOVATIVE APPROACH FOR ANALGESIA IN TOTAL KNEE ARTHROPLASTY

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Introduction: Periarticular anesthetic injections (PAI) and adductor canal blocks (ACB) have become commonplace in total knee arthroplasty (TKA). However, no traditional agent lasts longer than 24 hours, though delivery of medication can be prolonged with a peripheral nerve block catheter (PNBC). Liposomal bupivacaine (LB) extends the local release of bupivacaine for up to 72 hours. This retrospective study evaluates LB's efficacy in a combined PAI and ACB to traditional ACB. Methods: After IRB approval, patients who underwent unilateral TKA with neuraxial anesthesia were identified. The LB group received an ACB and intraoperative PAI with LB. The PNBC group received an ACB with ropivacaine, and an indwelling PNBC for two days. Results: The LB group had significantly less pain in the first 24 hours (mean area under the curve 69.6±30.9 vs. 94.0±42.6, respectively). They also trended towards earlier discharge (55% on or before postoperative day 2, compared to 49% in the PNBC group). There was no difference in disposition, ambulation performance, or opioid consumption. There were no complications associated with either technique. Conclusion: LB administered as an ACB with PAI improved acute postoperative pain control without adverse effect. LB administered as an ACB avoids the disadvantages of PNBC and the risk of motor blockade of a femoral nerve block. Prospective studies with additional patients are required to assess for small differences in outcomes, compare safety profiles, and perform a financial analysis.

Date: 2016-09-09
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Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 44954

A RANDOMIZED CONTROL TRIAL TO EVALUATE THE EFFECTIVENESS OF INTRAVENOUS, INTRA-ARTICULAR AND TOPICAL WASH REGIMES OF TRANEXAMIC ACID IN PRIMARY TOTAL KNEE ARTHROPLASTY

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Background: The efficacy of tranexamic acid to decrease post-operative blood loss and blood transfusion is well established in literature. However the ideal mode of administration is debatable. Limited literature has compared all the available modes of administration including intravenous, topical irrigation and retrograde through drain. We hypothesized that no difference would be present in either form of administration of tranexamic acid. Methods:50 patients in 4 groups were enrolled for study. Group 1 received drug intravenously, group 2 had topical washing with drug before closure, group 3 received drug after closure through drain and group 4 was control who received no tranexamic acid. Post-operative blood loss, calculated blood loss, hemoglobin drop, transfusion requirements and complications were studied for all 4 groups. Results: Tranexamic acid results in lower bleeding irrespective of the mode of administration compared to control group. Total loss at end of 5 days are similar in all groups irrespective of method used to deliver the drug. Calculated blood loss and hemoglobin drop was minimum for intravenous and intra-articular administration. Requirement for blood transfusion was found to be lower in all tranexamic acid patients compared to non-tranexamic acid group. The requirement was highest in topical wash group among all tranexamic acid groups. Conclusion: We conclude that intra-articular and intravenous administration are equally effective and superior to topical wash method in reducing blood loss, hemoglobin fall and transfusion requirements.

Date: 2016-09-09
Session: Short Free Papers - Knee
Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 44892

THE EFFICIENCY OF SUPPLEMENTAL INTRAVENOUS TRANEXAMIC ACID IN FURTHER REDUCING HIDDEN BLOOD LOSS IN PRIMARY TOTAL KNEE ARTHROPLASTY: A PROSPECTIVE PILOT STUDY OF 43 CASES

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Objective: To investigate whether HBL could be further reduced if TXA was given in the days after primary total knee arthroplasty, and the safety of supplemental intravenous TXA. Method: A prospective pilot study was performed from Sep.2014- Feb.2015. Forty three patients who underwent unilateral TKA for OA were included. The patients were divided into the supplemented group (21cases) and the control group (22 cases). Both groups were given intravenous TXA on the surgery day (1g 15 mins before, & 1g after). The supplemented group was given additional TXA intravenously (1g, bid) on the 1st & 2nd day after operation, while the control group received an equal volume of saline. Drainage volume, preo- and 5 consecutive days postoperative hemoglobin and hematocrit were recorded. Pre- and postoperative venous ultrasound was performed to detective the DVT. Result: The general conditions were comparable between the two groups. Although the Hb from 1st-5th day after operation in supplemented group was higher than the control group without a statistical difference, the HCT in 5 days after surgery were significantly higher in the supplemented group(P=0.027).There was no significant difference in drainage volume and TBL, while the HBL was obviously reduced in the supplemented group (p=0.013). One patient in the control group suffered a muscular venous thrombosis, and there was no DVT happened in the supplemented group. Conclusion: Supplemental intravenous TXA could additionally reduce hidden blood loss after unilateral TKA, it seemed to be a safe method to further reduce blood loss without increasing the risk of DVT.

Date: 2016-09-09
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Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 44255

BLOOD LOSS IN PATIENTS UNDERGOING BILATERAL KNEE REPLACEMENTS WITH AND WITHOUT TOURNIQUET

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A randomized controlled trial 50 patients (100 knees) was done to estimate blood loss in bilateral total knee replacement with and without tourniquet. Current study is unique as it is first study that included only bilateral Total Knee Replacement patients with precise estimation of blood loss calculated by Mercuriali's formula, on 5th post-operative day, as shown below Estimated blood loss = patient blood volume x (Hctpreop – Hctpostop day 5) + ml of red blood cells transfused Patients were allocated in 2 groups in a randomized manner by SNOSE Protocol. (Group A: with Tourniquet and Group B: without tourniquet). There was no significant difference in mean age, height and weight of the patients between both the groups, all had Kellgren and Lawrence Stage 4 Osteoarthritis. Significant difference was observed in mean blood loss between both the groups (p-value: 0.000). Less mean blood loss was gauged in the intervention group A (with tourniquet) 604 ml than control group B (non-tourniquet) 1010 ml (p-value=0.000). We recommend application of tourniquet while performing bilateral Total Knee Replacement as it is associated with less blood loss, hence less blood to be transfused reducing complications of blood transfusion

Date: 2016-09-09
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Abstract no.: 45010

THE INCIDENCE OF DVT/PE IN UNILATERAL VS. ONE-STAGED BILATERAL TKA USING CONTRAST ENHANCED CT AND VENOUS ULTRASONOGRAPHY IN JAPANESE PATIENTS

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Introduction: Total knee arthroplasty (TKA) is one of the most successful surgeries to relieve pain and dysfunction caused by severe arthritis. Otherwise, it is still controversial that there is higher risk of DVT/PE in simultaneous bilateral TKA compared with unilateral TKA. Therefore, we prospectively investigated the incidence of DVT/PE after primary TKA by contrast enhanced computed tomography (CE-CT) and venous ultrasonography (US) in Japanese Patients. Methods: Eighty-four patients who underwent primary TKA from January to December 2014 were applied. The mean age was 74.8 years and average BMI was 25.4. There were 79 cases of osteoarthritis and 4 of rheumatoid arthritis. A single knee surgery team performed all operations with cemented type prostheses. There were 39 cases of one-staged bilateral TKA and 45 of unilateral TKA. CE-CT and venous US were performed at the 4th day after surgery and images were read by a single senior radiologist team. Results: CE-CT was performed in 64 patients (76.2%), otherwise 20 patients (23.8%) could not take the examination because of exclusion criteria. The incidence of DVT and/or PE was 49 patients (58.3%), including two PE (2.4%), 41 DVT (48.8%) and six both PE and DVT (7.1%). There was no significant difference in the incidence of DVT/PE between unilateral and bilateral TKA. Conclusion: We prospectively investigated 84 patients for DVT/PE after primary TKA using CE-CT and venous US. The incidence was 56.0% of DVT and 9.5% of PE in Japanese patients. There was no significant difference in both groups.

Date: 2016-09-09
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Time: 14:00 - 15:30
Room: Tintoretto 2

Abstract no.: 44801

ANTHROPOMETRIC STUDY OF THE HEMOPHILIC KNEE JOINTS UNDERGOING TOTAL KNEE ARTHROPLASTY

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Introduction and Objectives: Total knee arthroplasty (TKA) is the standard treatment in severe stages of hemophilic arthropathy (HA). HA usually starts in childhood when open physes are vulnerable to growth alteration and this may alter the anatomy of the knee joint. So especial considerations may be required when operating on a hemophilic knee for which little data is available about anthropometric characteristics. We studied the anatomical dimensions of hemophilic knees compared to usual osteoarthritic ones. Materials and Methods: In a prospective case-control study, anthropometric characteristics of 24 patients with hemophilic arthropathy and 28 patients with osteoarthritic knee were recorded. To eliminate the sex bias, only male osteoarthritic patients were enrolled. Several pre- and intra-operative indices were measured for each patient. The data was introduced to IBM SPSS software and were analyzed using appropriate methods. Results: Fifty-two patients were enrolled (24 with HA). Patients with HA had significantly wider medial-lateral diameter of distal femur (87.55.2mm) compared to OA patients (76.24.2mm, $p<0.05$) while the anteroposterior size did not differ significantly between the two groups. The patients with HA had significantly higher medio-lateral to antero-posterior size aspect ratio compared to OA group ($p<0.05$). The patellae were also larger in hemophilia group. Conclusion: The anatomic characteristics of hemophilic knee are different from osteoarthritic knee. This disparity may have an impact in intraoperative decision-making and selection of the type of the prosthesis to avoid mismatches in size and gap balancing.

Date: 2016-09-09
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Room: Tintoretto 2

Abstract no.: 43207

IMPACT OF PREOPERATIVE PLANNING BY SURGEON ON OXFORD KNEE SCORE IN PATIENT SPECIFIC INSTRUMENTATION TOTAL KNEE ARTHROPLASTY

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Introduction: The purpose of our study is to assess the oxford knee score achieved following Patient Specific Instrumentation (PSI) Total Knee Arthroplasty (TKA), which were all planned by the surgeon without accepting engineer's default settings. Methods: Prospective study of 100 consecutive PSI TKA. In all cases, the surgeon evaluated and made necessary changes to the engineer's plan before approval. We collected oxford knee score (OKS) preoperatively and at one year follow up. Results: The mean pre-operative OKS was 18.1 while median was 17. The mean postoperative OKS was 40.2 while the median was 43.5. The mean improvement in OKS was 21.3 while the median was 23. On an average 6.36 changes were made per knee by surgeon from engineer's plan. The femoral component was downsized in 38% while the tibial component was downsized in 23% and upsizing in 2%. Tibial rotation was changed in most patients. Intra-operatively, only 2% needed recuts. Our planning accurately predicted 99% femoral components and 98% tibial components definitively implanted. Discussion: The mean and median pre-operative OKS in our study were lower than those published in 10th NJR report. However, our mean and median post-operative OKS were favourable when compared to NJR data (34.1 and 36). The mean and median gain in the OKS was also better than NJR data (15.1 and 16). Conclusion: Careful preoperative planning by the surgeon to fine tune the positioning of the implants in 3 dimensional plane may improve the functional outcome.

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Abstract no.: 42596

A PROSPECTIVE COHORT STUDY COMPARING COMPUTERIZED TOMOGRAPHY BASED 'PATIENT SPECIFIC BLOCKS' VERSUS CONVENTIONAL INSTRUMENTS IN PRIMARY TOTAL KNEE ARTHROPLASTY

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Background: Total knee arthroplasty is now a commonly performed surgery with successful outcomes. A Larger number of patients are expected to undergo this procedure in the future. Long term success of Total Knee Arthroplasty depends mostly on accurate achievement of postoperative mechanical alignment. Traditionally used conventional instruments for alignment are found to have several shortcomings, which have led to the development of patient specific blocks, with the aim to improve mechanical alignment. This study compared the postoperative mechanical alignment of lower limb achieved after Total Knee Arthroplasty using Computerized tomography based Patient specific blocks to that achieved using conventional instruments in Total knee arthroplasty. Material and method: Total 80 knees were included in the study, with 40 knees in both the groups operated using Patient specific blocks and conventional instruments. The primary aim of this study was to compare the postoperative mechanical alignment achieved with using Patient specific instruments and Conventional instruments in Total knee arthroplasty. The mechanical axis was assessed by measuring the Mechanical femoral-tibial angle on a long-leg radiograph of lower limb done on one of the follow-up visits. Results: There was significant improvement in postoperative mechanical alignment (p value - 0.001), in Patient specific block group compared to Conventional instruments.

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Abstract no.: 43630

THE ANTERIOR TIBIAL PROFILE AS REFENCE FOR SAGITTAL ALIGNMENT OF TIBIAL COMPONENT IN TOTAL KNEE ARTHROPLASTY

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Although standard instrumentation is commonly used for TKA alignment, its accuracy is not satisfactory since malalignment have been reported in up to 40% of cases. The object of this study was to analyse whether the anterior tibial profile may be a useful reference for sagittal alignment of tibial component. A standard intramedullary rod (IR) was inserted, as reference for the tibial mechanical axis (MA) in the sagittal plane, into the medullary canal of 47 dried cadaveric tibiae. A standard tibial cutting block was connected to the IR and an extramedullary rod (ER) was in turn connected to it. A lateral radiograph was taken to ascertain that the ER was placed parallel to the MA. The distance between the anterior profile of the tibia and the ER was assesses using AUTOCAD software at points located at interval of 2% of the entire tibial length. Tibial length averaged 31.98 mm (range 28.28-37.5mm). The distance from the anterior tibial border and the ER showed a non-linear distribution, the lower and higher values being found at 20% and between 70% and 80% of the tibial length, respectively. A similar distance from the anterior tibial profile and the ER was found at points located at 58% and 90% of the entire tibial length; these points may thus be used to align the ER parallel to the MA.

Date: 2016-09-09
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Abstract no.: 45198

TOTAL KNEE ARTHROPLASTY IN PATIENTS WITH VALGUS DEFORMITY: WHAT CONSTRAINT IS NECESSARY?

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Introduction: Less the 10% of the cases of knee osteoarthritis refer with a valgus deformity. Performing surgery on these cases has its own challenges because valgus knees have pathoanatomic characteristics, different from varus knee and need special considerations. We present the results of our populations of valgus knees. Methods: Between January 2010 and January 2014, we performed 756 total knee arthroplasties (TKA) at our institution, only 19 of them presented with valgus deformity. All patients underwent operation through medial parapatellar approach irrespective to severity of the deformity. The main technique for soft tissue balancing was pie crusting. All patients were followed-up prospectively at 3,6, 12 and 24 weeks postoperatively and then annually. Results: The mean age of the patients was 57.6 year. All patients received Posterior Stabilized knees, In 5 patients we had to use wedge and stem. The mean preoperative valgus of mechanical axis was 21.5 degrees (10 to 30 degrees). The mean postoperative degree of mechanical axis was 3.5 degrees that has been improved significantly ($p<0.005$). All scores including Knee Society Score, WOMAC and SF-36 have been improved significantly. Conclusions: The incidence of valgus knee in our patient population is low. We believe that the majority of valgus knees can be treated successfully with posterior stabilized prostheses through medial parapatellar approach. Careful soft tissue balancing is crucial to improve results and maintain constraint to a lower level. Pie crusting seems a reliable method even in severe cases.

Date: 2016-09-09
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Abstract no.: 44504

SAFETY CRITERIA FOR SHORT HOSPITAL STAY AFTER TOTAL JOINT REPLACEMENT

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Safety criteria for same-day (SD) or next-day (ND) discharge after TJR is not well defined. The aim of this study was to safety and efficacy of a screening questionnaire for safe SD/ND discharge. Between January 2014 and July 2015, two consecutive cohorts of primary hip and knee arthroplasties were followed for a minimum of 3-month. Group 1 included 121 cases as control cohort and Group 2 included 302 cases with pre-operative questionnaire, total of 423 cases. In both groups, spinal anesthesia and multimodal pain management including peri-articular injection was used. In group 1, 121 cases, 29% were discharged home and 71% to short-term rehabilitation center. The mean length of stay was 4.6 ± 2.5 days (2-7). 3% had symptomatic DVT and one patient pulmonary embolism. There were 4 superficial wound infection (3.3%), 2 re-operation for acute periprosthetic infection (1.6%), two cardiopulmonary events (1.6%), one periprosthetic fracture (0.8%), and 4 other ER visits for pain (3%). In group 2, 302 cases, 51% were discharged home, 6% of which (10 patients) were same-day discharge. The mean length of stay was 2.2 ± 0.8 days (0-5). One patient (1%) had symptomatic pulmonary embolism. There were 6 superficial wound infection (2%), 3 cardiopulmonary events (1%). There were 5 (1.6%) ER visits for wound concerns and pain. There were no acute re-admissions, infections or re-operations. Implementation of this questionnaire for SD/ND early discharge is safe and results in significant reduction of length of stay, higher discharge to home, lower rate of complications and less ER visits.

Date: 2016-09-09
Session: Short Free Papers - Spine
Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 45143
THE NON-OPERATIVE MANAGEMENT OF TYPE II ODONTOID PROCESS FRACTURES IN THE ELDERLY

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There is little evidence on the outcomes of Type 2 odontoid process fractures of C2 in the elderly. The aim of this study was to define the demographics, outcomes and management of this injury in patients over 70 years of age. There were 57 cases identified over a 41-month period at a Major Trauma Centre, diagnosed by computed tomography, mean age 83.7, 45.6% male. 86% of these patients sustained their fracture from a low energy fall. There was a 22% incidence of in-hospital mortality and 39% at one year. Non- operative management was undertaken for 89% of patients, with 4% progressing to osseous union. There was no statistically significant difference in mortality between the operative and non-operatively managed groups. Patients who had sustained other injuries had a significantly higher mortality. There was a delay in diagnosis from the index injury in 26% of patients. This study demonstrates that type 2 odontoid process fractures have a comparable mortality to fractures of the femoral neck at 1 year. A significant number of these injuries are diagnosed late and it is likely that many remain undiagnosed following low-energy trauma in the elderly.

Date: 2016-09-09
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Room: Tintoretto 2

Abstract no.: 45189

THE USE OF DORSAL TRANSPEDICULAR (TP) FIXATION AND VENTRAL SPONDYLODESIS IN PATIENTS UNDER 18 YEARS

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We analyzed the surgical treatment results for patients under 18 years with spine fractures, who underwent surgery from anterior and posterior approaches. Totally 35 children with spine column injuries were treated in Republican Scientific-Practical center for traumatology and orthopedics (Belarus) from 2008 to 2015 years (26 female and 9 male), middle-age was 16,5 years, min – 12 years old. In terms from 1 to 27 days after trauma following surgeries were performed: 23 patients underwent posterior decompression of the spinal cord, followed by dorsal TP-spondylodesis; in 9 cases only TP-fixation was made; one patient needed lumbar-pelvis stabilization. In 18 cases in terms of 8-32 days after dorsal approach – 2-nd stage was performed: ventral decompression of the spinal cord with interbody implant insertion. In 2 patients there was only anterior, titanium MASH and plate fixation. The results were analyzed in terms of 1-8 years after surgery. We achieved good results in all patients: early verticalization (on the 2-5 day), pain liquidation and neurologic deficiency regress. During the 1-st month capacity of self-service was totally restored, during the 1-st year fracture fusion had been observed in all cases, after what TP-fixator had been removed. We observed only 2 complications: in 1 case kyphotic deformity appeared and progressed after 1 year of implant removal; in 1 patient at 8-month's control we revealed spontaneous fixator dismantling. Therefore, we recommend both vertebral stabilization techniques as effective and safe way of severe spinal cord fractures treatment in patients before 18 years.

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Abstract no.: 43701

EFFICACY AND SAFETY OF ROPIVACAIN MONOTHERAPY IN FLUOROSCOPIC GUIDED FACET INFILTRATION IN LUMBAR FACET SYNDROME

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Introduction: Infiltration in the facet joint-area is a standard in orthopaedic practice. Due to reservations against clucorticorticoids we wanted to reveal retrospectively the efficacy and safety of an injection series by using Ropivacain. A PubMed-search did not show any papers dealing with efficacy and safety of facet infiltration using Ropivacain. Methods: We reviewed retrospectively 324 therapies in patients having a therapeutic resistant lumbar facet syndrome. Further causes of pain where excluded by CT/MRI. In abdominal position the facets were identified by fluoroscopy and 3 ml Ropivacain (2mg/ml) per segment was applied intra- and periarticularly. Before and 30 min after injection the visual analogue scale (VAS 0-10cm), blood pressure (RR) and oxygenation (SpO2) were screened. The statistical evaluation was done for the first and last VAS, RR and SPO2 using Paired-Wilcoxon-Test, for normality we used the Kolmogorov-Smirnov and Shapiro-Wilk-Test. Results and conclusions: In all 324 sessions neither severe affection of the sensibility of the legs nor any side-effects like metallic taste in the mouth or anaphylaxis were seen. The VAS Score was reduced significantly ($p<0.001$) by 2.782 points (0-10 scale) from 5.329 (mean value, SD 2.1768) to 2.457 (SD 2.2879) after therapy. The pulse rate was significantly reduced by 2 ($p=0,004$) from 78 to 76 per min indicating less pain. The SPO2 was reduced by 0.65 ($p=0,014$) (interpreted as relaxation). Neither the systolic nor the diastolic RR was altered significantly during the therapy. Ropivacain monotherapy in fluoroscopic guided Facet infiltration in lumbar facet syndrome is an effective and safe therapy option.

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Abstract no.: 44182

MID-AND-LONG TERM CLINICAL OUTCOMES OF LUMBAR SPONDYLOLISTHESIS FOLLOWING UNILATERAL INSTRUMENTED TRANSFORAMINAL LUMBAR INTERBODY FUSION

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Purpose: A retrospective study was designed to evaluate clinical outcomes of lumbar spondylolisthesis following unilateral instrumented TLIF. Methods: Forty four consecutive patients (mean age: 60.8) suffered from single-level lumbar spondylolisthesis, were included. The average follow-up period was 52.1 months. The degree of vertebrae slippage was Grade I in 35 patients and Grade II in 9 patients. There were 6 isthmic spondylolisthesis and 38 were degenerative spondylolisthesis. The Oswestry Disability Index (ODI) score, Japanese Orthopedic Association (JOA) score, visual analog scale (VAS) of low back pain and leg pain were evaluated. Operating time, blood loss, length of stay, and complications were also recorded. The status of bony fusion was evaluated by three-dimensional computed tomography. The sagittal alignment was assessed by lateral radiographs. Result: The average operating time was 94.4±29.1 min. The average blood loss was 147.7±145.2 ml. And the average length of stay was 12.0±2.2 d. There were 2 patients suffered from instrumented-related complication (1 rod-broken, 1 cage migration). The fusion rate was 81.8%. The postoperative ODI, JOA and VAS scores were significantly improved than preoperative values ($p<0.05$). The postoperative lumbar lordosis angle (LL) and segment lordosis angle (SL) increased by 3.2 and 1.4 degrees on average, respectively. The postoperative LL and SL were associated with back pain VAS and ODI scores, respectively. Conclusion: Unilateral instrumented TLIF technique is a safe and effective treatment option for single-level lumbar spondylolisthesis. The procedure is minimal invasive, achieves good outcomes and has a low complication rate and also could partly restore lumbar sagittal alignment.

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Abstract no.: 45318

KITCHEN-ELBOW SIGN (KE SIGN) ON THE SKIN OF THE ELBOW, A POSSIBLE INDICATOR OF IMPAIRMENT DUE TO SAGITTAL IMBALANCE IN PATIENT WITH LUMBAR DEGENERATIVE KYPHOSIS

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Introduction: Since patients with severe spinal sagittal imbalance cannot maintain standing upright position, they tend to lean to desk or kitchen with their forearm and elbow. This habitual manoeuver consequently forms a corn or pigmentary deposit on the skin of the dorsal side of the elbow joint. We studied relationship between this skin sign and spinal sagittal imbalance. Methods: one-hundred fifty female patients with low back problems, including 50 lumbar degenerative kyphosis (LDK), 50 lumbar canal stenosis (LSCS), and 50 non-specified low back pain (NSBP) were subjected. Inspection of skin of the forearm and elbow of the bilateral side was performed for detection of a corn or pigmentary deposit. Plain lateral X-ray film of the whole spine during standing was analyzed for lumbar lordosis angle and sagittal vertical axis. [Results] The prevalence of a corn or pigmentary deposit on the skin of the dorsal side of the elbow joint was significantly high ($p<0.01$) in the LDK group than in the LSCS and NSLB groups. Patients with the skin sign in the elbow had significantly lower lordosis ($p<0.01$) and increase in SVA ($p<0.01$). Conclusions: The corn or pigmentary deposit on the dorsal elbow can be created in patients with poor sagittal balance, since they load their body weight on the elbow when they work in the kitchen. Here, we name it Kitchen-Elbow sign (KE sign) which can be an indicator of poor sagittal balance. Importantly, inspection of the skin of the dorsal side of forearm and elbow is essential.

Date: 2016-09-09
Session: Short Free Papers - Spine
Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 44104

OPTIMAL TERMS OF TRACHEOSTOMY IN PATIENTS WITH ACUTE COMPLICATED CERVICAL SPINE TRAUMA

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Introduction. Breathing disorders are critical problem for survival of patients with cervical spinal cord injuries which requires maintaining patency of airways. Prolonged intubation of trachea or early tracheostomy are concurrent methods in such situations. Purpose. To determine optimal terms of tracheostomy in patients with acute complicated cervical spine injury. Material. 56 patients with cervical spinal cord injuries were treated since 2009 to 2014. In Group I (n=31) early tracheostomy was performed within 3 days after the injury, in Group II (n=25) tracheostomy was performed later than 3 days after prolonged intubation of trachea. Data of fiber-optic-bronchoscopy (FOB) and chest-X-rays performed on day 3, 7 and 21 are analyzed. Results. On day 3 tracheitis (on FOB) was revealed in 28% of patients in Group I and in 84% in Group II ($p<0.05$). On day 7 most of patients had endobronchitis (87.1% vs. 96%, NS), but in Group II frequency of puruent endobronchitis prevailed (71% in Group I and 92% in Group II, NS). On day 21 the treatment of purulent endobronchitis was more effective in Group I (35.4% vs. 68%, $p<0.05$). Radiological examination showed total atelectasis in 16% of patients in Group II and none in Group I ($p<0.05$). Signs of pneumonia were noticed on day 3 in 51.6% of patients in Group I vs. 84% in Group II, on day 21 respectively 16.1 vs. 40% ($p<0.05$). Conclusions. Complications of prolonged intubation develops very quickly in these patients. Early tracheostomy decreases number and severity of complications in respiratory system.

Date: 2016-09-09
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 42473

REVISION SURGERIES OF FAILED CERVICAL ARTIFICIAL DISC REPLACEMENT

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Purpose: We investigated causes and results of revision surgeries following artificial disc replacement of cervical spine (C-ADR). Methods: Twenty-one patients (13 males and 8 females) underwent revision surgeries for failed C-ADR and had a minimum 2-year follow-up. The mean age was 52.8 years (range, 43-63 years) and mean time to revision surgery was 21 months (range, 4-84 months). During their primary surgeries, 14 patients underwent single-level C-ADR, 2 two-level C-ADR, and 5 two-level hybrid surgery for 16 radiculopathy, 3 myelopathy, and 2 adjacent segment diseases. Causes for revision surgeries were at least one of the followings: 17 poor patient selections (severe spondylosis), 7 insufficient decompressions, 7 malpositions, 6 subsidences, 3 osteolysis, and 1 postoperative infection. Results: Sixteen patients underwent anterior removal of C-ADR, one-level discectomy and fusion (N = 11), two-level discectomy (N = 3) or one-level corpectomy (N = 2) and fusion. Three patients of keel type C-ADR with extensive heterotopic ossification underwent posterior laminoforaminotomy and fusion. Two patients underwent combined anterior and posterior procedures due to infection or severe subsidence and osteolysis. Neck and arm visual analog scales and Neck Disability Index score were improved at each time point of follow-up. At the 2-year follow-up, 86% of the patients were satisfied and 91% achieved solid fusion. No major neurologic and wound complications developed except for transient dysphagia in 6 patients. Conclusion: Revision surgeries provide successful outcomes in failed C-ADR without major complications. Careful patient selection and meticulous surgical techniques are important to avoid failure of C-ADR.

Date: 2016-09-09
Session: Short Free Papers - Spine
Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 45107

SIGNIFICANCE OF ENDPLATE FAILURE IN SYMPTOMATIC LUMBAR DISC HERNIATION

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Introduction: Endplate lesions are increasingly being recognized as genesis of lumbar disc herniation. Previously histopathology and CT scans were used to evaluate the endplate failure. In the present study three dimensional fast spoiled gradient (3DFSPGR) and CT scan were used to identify the bony and cartilaginous endplate failures. Also very little information is available regarding clinical course of various types of failures. Methods: Clinical and MRI features of 66 patients with isolated single level lumbar disc herniation were studied. They were grouped into 'with bony end plate failure (Group-1)' & 'without (Group-2)'. Twenty five patients were operated and 41 patients were treated conservatively. Changes in the pain score (VAS and ODI) and neurology were noted at 3, 6, 12, 24 and 36 weeks. Results: Bony endplate failure was seen in 47(71.2%) patients and isolated cartilaginous endplate lesions were seen in 17(25.7%) patients. Two patients (3%) had failure at annulus fibrosus. The group-1 had similar pain and functional scores but more severe neurological deficit at the initial evaluation than group-2. Clinical parameters improved in all groups, but the recovery was lesser in conservatively treated patients of group-1. Conclusion: End plate failures are commonly associated with lumbar disc herniation. The 3D FSPGR sequence of MRI can be successfully used for detection of the endplate lesions in the herniated disc. Presence of bony endplate failure can increase neurological deficit and reduce the chance of recovery with conservative management.

Date: 2016-09-09
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 42791

NOVEL METHOD OF CORRECTION OF EARLY ONSET SCOLIOSIS WITH CONGENITAL THORACOLUMBAR KYPHOSIS BY POSTERIOR TETHERING AND VERTEBRAL MODULATION

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Introduction: The aim of this study is to evaluate the role of the nonfusion instrumented procedure with compression, distraction in facilitating spinal modulation of the wedged peak vertebra, in patients with congenital thoracolumbar kyphosis/kyphoscoliosis according to the Hueter-Volkmann law. The authors seek to address the progressive modulation of the wedged deformed vertebra by analyzing the subjects' pre-operative and latest follow-up sagittal radiograph. Methods: Ongoing data collection of 14 peaked wedged vertebra modulation during surgical management of 13 patients with Type I congenital thoracolumbar kyphosis, all were treated with distraction based growth friendly implants with compression through pedicular screws above and below the peaked wedged vertebra through same posterior approach with at least 4 lengthenings with mean follow-up of 54.5 months (24-78). Results: Mean preoperative anterior height for the peaked deformed vertebrae measured 6.58 mm, with an average increase of 76.4% to 11.12 mm in the final follow-up. Mean preoperative posterior vertebral height measured 12.01 mm, with an average increase of 21.2% to 14.4 mm in the final follow-up. Average preoperative anterior/posterior height increased from 54% to 77%, with ranges of 35-69% and 68-90% in the final follow-up respectively ($p = <0.001$). Conclusions: correction of EOS through through posterior tethering and vertebral modulation would be a reliable method and decrease the need for anterior approach. This calls for further studies on the impact of surgical compressive and distractive forces of EOS on the morphologic response of the deformed vertebrae.

Date: 2016-09-09
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 43897

SURGERY FOR SPINAL TUBERCULOSIS: A MULTI-CENTER EXPERIENCE OF 621 CASE

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Introduction: Tuberculosis of the spine is a common form of TB. Spinal TB occurs in both developed and developing countries. The diagnosis is difficult and commonly presents at an advanced stage. Delays in diagnosis and management result in complications such as spinal cord compression and spinal deformity. Methods: Total 621 patients with tuberculosis of the cervical, thoracic and lumbar spine with moderate to severe cord compression were studied. Variable degrees of neurological deficit with deformity were treated from January 2003 to December 2015.Thoracotomy along with anterolateral decompression and autogenous strut bone grafting with simultaneous fixation by screws and rods were done in 113 cases. Posterior decompression, posterior interbody and posterolateral fusion by bone graft with stabilization by transpedicular screws and rods were done in the remaining 508 cases. Appropriate anti TB drugs were given to all patients for 18-24 months. Follow-up period was 3 months-10 years. Results: The average age was 32.5 years. All patients survived surgery. There were 9 cases of superficial infections whilst there were 6 with deep infections. Revision surgery was performed in 8. Implant failure occurred in 5 whilst malposition of screws occurred in 15 cases. Perioperative bleeding complications were reported for 5 patients. Neurological improvement occurred in all patients except for 2.Preoperatively, the majority of patients (n=229, 37%) were classified with Class A on the American Spinal Injury Association (ASIS) neurological impairment scale. This was significantly reduced postoperatively to 0.4%. Conclusion: For patients with spinal tuberculosis anterior debridement, auto graft bone fusion, anterior or posterior fixation appears to be effective in arresting disease, correcting kyphotic deformity and maintaining correction until solid spinal fusion.

Date: 2016-09-09
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Time: 16:00 - 17:30
Room: Tintoretto 2

Abstract no.: 43697

V-SHAPED RECOVERY FROM COMPLETE PARALYSIS CAUSED BY CERVICAL SPINAL CORD INJURY: THE POTENTIAL BENEFIT OF SUPER-URGENT SURGERY

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The earliest possible reduction of cervical fracture-dislocation injuries with paralysis is recommended. However, little evidence is available regarding the effect of early surgical decompression or fixation on improvement of paralysis. We describe a patient whose condition gradually deteriorated to complete motor paralysis after cervical fracture-dislocation; he then exhibited rapid recovery after super-urgent surgery and became able to walk independently within 14 days postoperatively. A 65-year-old man was taken by ambulance to his previous hospital after sustaining an injury in a car accident while driving. He was diagnosed with fracture-dislocation at the C5/6 level (Allen–Ferguson classification: distractive flexion injury, stage IV). At admission to his previous hospital, his paralysis was classified as modified Frankel grade D, and further worsened to grade B1 during transfer to our hospital. Reduction of the dislocation was performed 6 hours and 5 minutes after injury. C5/6 posterior fixation was carried out and the surgery was completed in 55 minutes. Spontaneous limb activity rapidly recovered to grade 4 to 5 on manual muscle testing overnight, then he was able to walk independently on postoperative day 14. His lower limb muscle strength completely recovered on postoperative day 20, and he discharged on postoperative day 52. We had a surprisingly good clinical result with full recovery of neurological function in a short period from modified Frankel grade B1 by performing open reduction and internal fixation after trauma. This case highlights the potential benefit that very-early decompression for cervical damage can dramatically improve the functional prognosis of patients.

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Room: Tintoretto 2

Abstract no.: 43472

THE SAFETY AND EFFICACY OF INTRAOPERATIVE ACUTE NORMOVOLAEMIC HAEMODILUTION (ANH) IN COMPLEX SPINE SURGERY AT AN SRS GOP SITE IN GHANA

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Introduction Complex spine surgeries are associated with significant blood loss, requiring blood transfusion. Allogenic blood transfusion is related to surgical time and blood loss. Underserved region have limited blood product supply and therefore alternative blood conservation methods such as ANH will reduce/obviate this transfusion demand Method 106 complex spine pts aged ≥7 with pre op Hb ≥ 12 treated at a single center in Ghana were retrospectively reviewed. 47 ANH (Grp 1) pts were compared to 59 non-ANH (Grp 2) pts. They were matched with respect to age, wgt., preop hemoglobin levels, OR time and fusion levels. Data was analysed for EBL, transfusion, post op Haemoglobin (Hb) and complications. Results There were 106 pts: 32M/15F in Grp 1 vs 26M/33F Grp 2) with an average age of 19yrs in both grps. Fusion levels were similar in both Grps. The volume of allogenic blood transfusion was significantly higher in Grp 2 (1192ml) vs Grp 1 (860ml) (P=0.01). Cell saver blood transfusion avg 697ml (Grp 1) vs 522ml (Grp 2) (p=0.02). There was no significant difference in Hb at POD 0 or POD 1; (10.4mg/ml vs 10.5mg/ml; p=0.62). Conclusion ANH can be safely performed in complex spine surgery in underserved regions to reduce allogenic blood transfusion, complications and hospital cost.

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Abstract no.: 44659

POSTERIOR LIGAMENTOUS COMPLEX INJURY IN BURST FRACTURES: SURGICAL CORRELATION WITH KYPHOSIS, LOSS OF VERTEBRAL HEIGHT AND CANAL COMPROMISE

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Introduction: Burst fractures with PLC injuries undergo progressive kyphosis if managed conservatively. Prediction of PLC injury preoperatively without MRI is difficult as radiological parameters like Cobb angle, local kyphotic angle, translation, canal compromise do not correlate. Delineation of radiological parameters measured on CT scan with PLC injury preoperatively may help guide surgical decision making. Methods: 56 patients, with mean age 41.7yrs, managed operatively with 35 male and 21 female. Local kyphotic angle (LKA), loss of vertebral body height, anterior body height to posterior body height ratio, translation, interspinous distance, sagittal transverse ratio and canal compromise were calculated from preoperative CT scan and compared with intraoperative finding of PLC. Results: 37 patients had intact PLC and 19 had PLC injury intraoperatively. Mean LKA was 16.22°. Mean interspinous widening, translation, loss of vertebral body height, anterior to posterior body height ratio, sagittal transverse ratio and canal compromise were 9.1 mm, 0.73 mm, 43 %, 0.60, 0.44, 61%, respectively. None of parameters measured correlated with PLC injury except sagittal transverse ratio of less than 0.38 that was inversely related. Discussion: Study shows that CT scan parameters LKA, loss of vertebral body height, anterior to posterior vertebral body height ratio, interspinous distance, translation and canal compromise are not predictive of integrity of PLC. Sagittal transverse ratio of <0.38 is found to have significant negative correlation with integrity of PLC as determined intra-operatively. Our results suggest that severe bony injury causes greater impaction on bony structures that spare the surrounding soft tissues.

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Room: Tintoretto 2

Abstract no.: 43587

SOCIAL DRIFT - A COMPARATIVE ANALYSIS OF BALLOON KYPHOPLASTY FOR OSTEOPOROTIC VERTEBRAL COMPRESSION FRACTURES AND SURGERY FOR FRACTURED NECK OF FEMUR

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Introduction: Fractured neck of femur (NOF) and Osteoporotic Vertebral Compression Fractures (OVCF) can have a significant effect on social function. Downward ‘social drift’ in functional status post-injury has been described. Priority of surgical treatment following fractured NOF is well established. We aimed to analyse and compare the incidence of social drift and mortality following either balloon kyphoplasty for OVCF or surgery for fractured NOF in patients who lived in their own home. Methods: From 2007-2012 we prospectively recruited 1,966 patients (1414 female, 552 male) who presented with NOF fractures and 230 patients (152 female, 78 male) who presented with OVCF into our study. Patient discharge destination was categorised as back to home, residential home, nursing home or death. We analysed age, sex and type of operation received for NOF group and age, sex and number of levels of kyphoplasty for OVCF group using univariate ANOVA. Results: NOF group showed 12.3% downward social drift and 33.4% mortality. OVCF group showed 8.3% downward social drift and 27.4% mortality. Age, sex and type of operation performed were all significant predictors of NOF discharge destination ($p<0.01$). Age was a significant predictor for OVCF ($p=0.007$) but sex and number of levels of kyphoplasty were not ($p=0.123$ and $p=0.633$). Conclusions: We observed similar social drift and mortality after treated OVCF and fractured NOF, while the number of levels of kyphoplasty performed was insignificant in predicting discharge destination following OVCF. We believe OVCF deserve a similar treatment priority as fractured NOF.

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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44890

DOES THE RELEASE OF TRANSVERSE LIGAMENT IMPROVE THE RESULTS OF HIGH ARTHROSCOPIC TENODESIS?

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Tendinopathies of long head of biceps (LHB) are causes of pain in patients undergoing arthroscopic rotator cuff repair. The management of LHB tendon is a key-point in shoulder arthroscopy, as it may have a strong influence on the final outcome of surgery. The purpose of this study is to compare the results of arthroscopic high tenodesis with release of the transverse humeral ligament (AHTT) versus high tenodesis without release of the transverse humeral ligament (AHT). Fifty patients with a rotator cuff tear, associated with LHB tendinopathv were randomly divided. Twenty five patients underwent arthroscopic high tenodesis with release of the transverse humeral ligament and twenty five underwent high tenodesis without release of the transverse humeral ligament. Postoperative evaluation included VAS, Constant score, and the LHB score. At early, intermediate and final follow up (24 months) both groups showed a significant improvement in outcomes score when compared with pre-operative. The AHTT group showed better LHB and Constant score than AHT (LHB: 68 vs. 88, $p < 0.05$; Constant score 66 vs. 83.2, $p < 0.05$). Immediate post-operative pain assessed by the VAS scale was comparable in the two groups (7.4 vs 7.5, $p < 0.05$). The AHTT is an easy and reproducible technique, leading to better clinical results when compared to the AHT.

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Room: Tintoretto 2

Abstract no.: 42985

SUCCESSFUL EARLY RETURN TO SPORTS AFTER INTERNAL BRACING PRIMARY ACL REPAIR

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Introduction: This prospective study evaluated patient outcomes following primary ACL repair using an internal bracing system with reciprocal dynamic fixation tensioning and platelet rich plasma augmentation. Methods: Twenty-eight athletes (14 males, 14 females) at 24 ± 9 years of age participated. Subjects completed the Knee Injury and Osteoarthritis Outcome Score (KOOS) activity of daily living (ADL) and sports subscales at the end of post-surgical week one, at release from care (12 weeks), and at ≥ 2 years follow-up. Two subjects were non-compliant, returning to sports at only 6 weeks post-surgery. Functional indices (involved/uninvolved side x 100) at release from care were 95 ± 7%, 96 ± 6%, and 93 ± 8% for the single leg hop for distance, the single leg timed hop, and the triple hop for distance, respectively. KOOS ADL subscale results were 39 ± 29 at the end of post-surgical week one, 75 ± 28 at release from care, and 97 ± 10 at ≥ 2 years follow-up. KOOS Sports subscale scores were 10 ± 6 at the end of post-surgical week one, 46 ± 33 at release from care, and 91 ± 10 at ≥ 2 years follow-up. The two subjects who did not comply with the study protocol experienced ACL re-injury at 1 year post-surgery. No other subject displayed anterior translational or pivot shift knee laxity or radiographic knee osteoarthritis evidence at follow-up. Conclusions: Primary ACL repair displayed promising early outcomes. Long-term follow-up is needed to confirm results.

Date: 2016-09-10
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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 42584

IS BASELINE STRAIN INDEX A PROGNOSTIC FACTOR FOR SMALL UNILATERAL SUPRASPINATUS TENDON TEARS? A 2-YEAR FOLLOW-UP STUDY

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The quality of muscles and tendons is considered one of the most important issues for successful outcomes after rotator cuff repair. Real-time sonoelastography (RTSE) is a noninvasive, safe, cheap, and reproducible device that uses ultrasounds (US) to evaluate and display in real-rime the mechanical properties of tissues (stiffness and elasticity), indirectly reflecting their quality. All the patients presenting for a unilateral rotator cuff tear were prospectively scrutinized. Patients were initially managed non-operatively, and surgery was considered after at least 3 months of failed conservative treatment. Clinical evaluation included complete physical examination, VAS for pain, Quick DASH, Constant-Murley score, Simple Shoulder Test, ASES score and UCLA score. Conventional ultrasounds and RTSE were performed to evaluate the mechanical properties of tissues that were estimated by strain index. Of the 50 enrolled patients, 43 were available for evaluation at 2 years. Fifteen had undergone surgery (operative group), while 28 recovered from pain and dysfunction with conservative management and had not required surgery (non-operative group). Patients in both groups significantly improved at follow-up, and no differences were found in all considered clinical outcomes. The biomechanical properties of repaired tendons were maintained, while non-operatively treated tendons softened over time. Baseline and follow-up strain indexes were linearly correlated with clinical outcomes at 2 years. The biomechanical properties of surgically repaired tendons were maintained, while non-operatively treated tendons softened over time. At least in this cohort of patients, baseline strain index did not suggest who could be managed conservatively and who will need surgery.

Date: 2016-09-10
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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 44176

QUALITY OF SEXUAL LIFE AFTER ARTHROSCOPIC RELEASE OF GLUTEAL MUSCLE CONTRACTURE IN FEMALE PATIENTS

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Introduction: Most female patients with gluteal muscle contracture (GMC) treated with arthroscopic gluteal muscles release experience favorable functional outcomes. However, whether the quality of life after operation is indeed improved has not been assessed in literatures. Sexual life is an important component of the quality of life and is still a frequently neglected domain in patients with GMC. The aims of the study were to evaluate the improvement of the arthroscopic release surgery on quality of sexual life (QSL) in these patients. Methods: A prospective, self-controlled study was done. 112 patients of GMC who underwent bilateral arthroscopic release surgery with radiofrequency energy were asked to complete a standardized QSL questionnaire, and the score of QSL was evaluated preoperatively and at the follow-up one year postoperatively. Results: The mean age of the patient was 26.8 (range 18–44) years. There is significant decrease ($p<0.05$) in sexual relationship impairment on the 0–8 scale preoperatively compared with postoperatively. There is no significant difference for effect on sexual function between pre- and post-operation. There is no significant improvement ($p <0.05$) in overall sexual satisfaction degree of patients on the 1–5 scale from pre- to post-operation, but significant increase for sexual partner. Conclusion: This first evaluation of sexual life after surgery for GMC suggests that sexual dissatisfaction is impaired in female population and improved by arthroscopic release.

Date: 2016-09-10
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Room: Tintoretto 2

Abstract no.: 43378
ARE SEVERE DEFORMITIES AN ABSOLUTE CONTRA INDICATION FOR HIP ARTHROSCOPY?

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Despite severe deformities such as protrusio acetabuli, sever sub spine impingement, aftereffects of SCFE & of juvenilis septic arthritis have been considered a contra indication for hip arthroscopy there are papers describing the feasibility of treating these deformities arthroscopically. We describe the treatment of 6 cases with these kinds of deformities, none of these had dysplasia, none had lower limb torsional or femur version problems. Mean age was 24.Mean pre op MHHS and NAHS were recorded for each patient. Pre op A-P weight bearing X Ray as well as 45° DUNN and Lesquense view were performed. X-rays demonstrated the deformity and a good joint space. A CT scan and a collision model were also performed preoperatively to assess the feasibility of the surgery for the acetabular deformity cases. The 2 acetabular deformity cases were treated with a out in technique, the other cases with a central compartment first technique. Arthroscopic treatment was performed until a good collision intra op test was obtained. Satisfactory decompression was achieved. Post op X-ray demonstrated improvement of the hip joint morphology. Post op R.O.M was significantly increased in all cases with a mean of 40° in flexion, of 20° in internal rotation, of 15° in external rotation, of 30° in abdution. R.O.M was maintained at 3, 6 and 12 months follow up. Post op mHHS and NAHS increased to a mean 94 and 92. These deformities aren’t absolute contra indication to arthroscopic treatment. Accurate pre op evaluation is mandatory to understand the morphology and the feasibility of the treatment. Collision models are a helpful/necessary tool especially regarding acetabular side deformities.

Date: 2016-09-10
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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 42792

DIAGNOSTIC ANKLE ARTHROSCOPY: IS IT USEFUL?

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In some cases, a diagnostic problem arises even in those carefully examined and fully investigated patients with chronic ankle pain. One important question to be answered from this study: Is there still a place for diagnostic ankle arthroscopy? This study was conducted on 60 patients who complained of chronic ankle pain for a minimum of six months associated with ankle swelling, locking, giving way and/or limitation of motion not responding to conservative treatment. There were 43 males and 17 females patients with a mean age of 34.6 years. Our preoperative clinical evaluation of the patients included careful history taking, clinical examination, radiographs, MRI, and Liu and Jacobson ankle scoring system (1995) assessment. Diagnostic ankle arthroscopy was undertaken for all patients, utilizing the standard anteromedial and anterolateral portals. All cases were followed up for a minimum of two months to detect any procedure induced complications. Arthroscopic examination added extra findings over radiographs and MRI in 33 cases; mainly in the form of intra articular synovitis and adhesions in 9 cases, anterolateral impingement in 9 cases, arthritic changes in 6 cases, intra-articular cartilagenous loose bodies in 6 cases, and tibial plafond cartilagenous ulcer in 3 cases. Postoperative complications included superficial peroneal nerve injury in four cases, anteromedial portal superficial infection in one case, and reflex sympathetic dystrophy of foot in one case. We believe that the diagnostic component of ankle arthroscopy has aided in the gathering of information not otherwise obtainable and detection of intra-articular lesions.

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Time: 08:30 - 10:00
Room: Tintoretto 2

Abstract no.: 43014

TO WHAT EXTEND CAN APPLICATION OF A CELL-FREE SCAFFOLD IMPROVE THE OUTCOMES IN PATIENTS TREATED FOR FOCAL OSTEOCHONDRAL LESIONS OF THE KNEE

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Purpose: The purpose of this study was to analyze the clinical and radiographic efficacy of hyaluronic acid-based cell-free scaffold applied in combination with microfracture versus microfracture alone in patients with focal osteochondral lesion of the knee joint. Methods: In this retrospective study, the clinical data of 43 patients between 24 to 55 years of age were evaluated. The scaffold was applied in combination with microfracture for 19 knees (Group 1) whereas microfracture alone was the surgical intervention for 24 knees (Group 2). All lesions were Outerbridge grade IV with a mean size of 3.6 ±1.3 cm2. The mean follow-up time was 25.7 months. Visual analogue scale (VAS), Lysholm knee score, and Tegner activity scale were the instruments to evaluate the clinical status. Magnetic resonance observation of cartilage repair tissue (MOCART) system was used to analyze the characteristics of repair tissue. Results: Better VAS and Lysholm scores were detected in Group 1 at 12 and 24 months. The mean time from surgery to return to non-impact sports activities was 7.8 months in Group 1 whereas, it was 9.2 months in Group 2. Complete repair with the filling of the chondral defect was achieved in 6 (31.6%) of the knees whereas hypertrophic filling of the defect in 7 (36.8%) according to MOCART system at 24 months. Conclusions: Single-stage regenerative cartilage surgery using hyaluronic acid-based cell-free scaffold in combination with MFX revealed promising clinical outcomes at 24 months of follow-up.

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USE OF LOW MOLECULAR WEIGHT HYALURONIC ACID IS ASSOCIATED WITH A SHORTER TIME TO KNEE ARTHROPLASTY IN THE ELDERLY U.S. KNEE OA POPULATION

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Recent literature suggests differences in efficacy and safety with respect to intrinsic properties of hyaluronic acid (HA) injections favoring higher molecular weight (HMW) and biological fermentation-derived products. We evaluated whether the use of HA injections is associated with a delay to knee arthroplasty (KA) and if there are effect size differences by formulation. Median time to KA was compared between patients with HMW biologically derived HA (HMWB-HA), HMW non-bioengineered-HA, medium MW-HA (MMW-HA), low MW-HA (LMW-HA) and no HA, using quantile regression with propensity score adjustment. In a subgroup analysis of HMWB-HA patients, the time to use was evaluated for its association with time to KA. Based on 35,146 knee OA patients who underwent KA (27.3% with HA) from the 5% sample of Medicare data (2005-2012), the median time to KA for all HA's was associated with a longer time to KA of 8.7 months compared to no HA ($p<0.001$). HMWB-HA patients had similar time to KA as MMW-HA and HMW non-bioengineered-HA ($p\geq0.224$), but longer time to KA than LMW-HA patients by 2.9 months ($p<0.001$). Patients who had the HMWB-HA injection within 12 months following knee OA diagnosis had a longer time to KA compared to after 12 months by 1.9 months ($p<0.001$). LMW-HA patients had the shortest time to KA over other HA patients. Patients who were given HMWB-HA sooner were also found to have an extended time to KA. This data suggests that product differentiation and earlier use of HMWB-HA may have some bearing on patient outcomes.

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SYNERGISTIC EFFECTS OF HYALURONIC ACID AND CORTICOSTEROID INJECTIONS IN EXTENDING TIME TO KNEE ARTHROPLASTY IN KNEE OA PATIENTS

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Introduction: Combined CS and HA injection use has shown potential benefits with greater pain relief. We evaluated whether the combined use of CS and HA injections had any effect on extending time to knee arthroplasty (KA). Methods: The 5% sample of Medicare data (2005-2012) was used to identify knee OA patients who underwent KA. The time to KA was evaluated for the effects of CS injection use in patients with ("HA") and without ("no HA") HA injection use, using quantile regression with propensity score adjustment. Results: 35,146 knee OA patients (27.3% with HA) subsequently underwent KA. In the "no HA" cohort, the median times to KA ranged from 2.2 to 3.1 months for those without CS injections versus 7.9 to 14.0 months for those with CS injections. In the "HA" cohort, the median times to KA ranged from 6.7 to 14.8 months for those without CS injections, which were further delayed to 15.5 to 23.3 months in the combined HA/CS cohort. Patients with both HA and CS injections had an additional adjusted delay of 6.3 months (95% CI: 5.5 to 7.0 months; $p<0.001$) over those with only HA injections. Discussion: Our analysis of elderly knee OA patients showed a significantly longer time to KA for those who were treated with HA, with an apparent synergistic effect in patients who received both CS and HA. The extended time may provide additional time for patients to better control pre-existing conditions prior to KA, which could aid in reducing postoperative morbidity.

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CARTILAGE REGENERATION AFTER ISOLATED HIGH TIBIAL OSTEOTOMY: 2ND LOOK ARTHROSCOPIC STUDY

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This study was to evaluate cartilage regenerations after isolated high tibial osteotomy and to assess correlation among clinical outcomes, degree of cartilage regeneration and postoperative alignment. 60 patients who underwent a second-look arthroscopic evaluation at the time of surgery of plate removal in 1 year of initial HTO were involved. Cartilage status of initial and second arthroscopy were evaluated using the International Cartilage repair society (ICRS) grading system. The degree of medial femoral and tibial cartilage regeneration was divided into 3 groups: improved, no change, aggravated. KS score at the time of second look surgery was assessed for clinical outcomes. Mechanical tibiofemoral angle at second surgery was divided into 3 groups: varus, 0-3 degree of valgus, greater than 3 degree of valgus. Results: The status of medial tibial cartilage did not showed a significant change (no changed in 75%). Regeneration of medial femoral cartilage was not observed in most cases (no changed in 56.7%). Improvement and aggravation of cartilage grade were observed in 25%, 18.3% respectively. No significant differences were observed at the time of second look arthroscopy in clinical outcomes according to the grade of regeneration and the mechanical axis. Cartilage regeneration had a tendency of improvement with increased valgus mechanical axis at the time of second look arthroscopy. Conclusion: Cartilage regeneration was not yet satisfactory at the 1 year after initial HTO without any cartilage regeneration procedures. There were no significant correlations among clinical outcomes, cartilage regeneration and degree of valgus alignment

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ACTIVITY TOLERANCE AFTER MENISCAL ALLOGRAFT TRANSPLANTATION

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Introduction: Meniscal allograft transplantation (MAT) has evolved into an optical option in meniscus-deficient patients. This article is o evaluate the ability of patients to return to preinjury levels of activity after MAT. Methods: The International Knee Documentation Committee score (IKDC), Lysholm score, Tegner score, Visual Analogue Scale (VAS) and physical examinations of patients treated with MAT were retrospectively reviewed to measure clinical outcomes, and questionnaires regarding activity and factors were analysed. Results: Mean follow-up was 31 months for 61 patients (65 knees). The mean results for VAS, IKDC score, Lysholm score were significant better than the preoperative data ($P<0.05$), while there was no significant difference in the ROM and Tegner score ($P>0.05$). Thirty-eight (62.3%) patients were able to return to their previous level of activity. The remaining 23(37.7%) patients reached mean 76.7% of the previous level of activity. In the 23 patients reporting a decrease in activity, 10 cases reported the fear of re-injury as the primary factor limiting activity. In the remaining, pain (n=5), limitation of ROM (n=4), medical advice (n = 3), and a change in life situation (n = 1) were the reported primary reasons for decreased activity. Conclusion: The majority of active patients with meniscal disorders return to preinjury levels of activity after arthroscopically assisted meniscal allograft transplantation.

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NEW ARTHROSCOPIC FINDINGS ON MENISCAL TEAR

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Introduction: The aims of this study were to bring forward a new and unique injury pattern of the lateral meniscus anterior horn and investigate its clinical value. Methods: Meniscal tears underwent arthroscopic surgery in our orthopaedic center from January 2012 to December 2014 were included into the prospective study. The lateral meniscus anterior horn were video-taken to record the morphology and tear patterns during the surgery. Meanwhile, histomorphological examination was conducted to the complete lateral meniscus specimens of 100 cases undergoing artificial total knee joint replacement. Results: most tear patterns in the lateral meniscus anterior horn are remarkable, with loose fibers in the damaged parts and the circumferential fiber bundles were separated, which is significantly different from the types of meniscal tears as literature reports. We name it as loose-fiber avulsion. The histomorphological observation indicates that 57% (57/100) of the specimens have the circumferential fibers of lateral meniscus anterior horn different from the even distribution of meniscus body and posterior horn. They gather to be bundles, and the boundary between bundles is clear. Conclusions: The circumferential fibers of most people’s lateral meniscus anterior horn distribute differently from the even distribution of meniscus body and posterior horn. They gather to be bundles. A long-term overload makes the circumferential fiber bundles be loose and separated, which leads to unique loose-fiber avulsion. Loose-fiber avulsion is common in the injury pattern of lateral meniscus anterior horn, which is also closely associated with the cyst predominantly found in lateral meniscus anterior horn.

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DEVELOPMENT AND EVALUATION OF ADJUSTABLE KINEMATIC JOINT MODELS FOR UNDERSTANDING JOINT DISLOCATIONS AND REDUCTION TECHNIQUES

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Introduction: We developed three different adjustable kinematic joint models to support understanding the mechanisms of shoulder, elbow and patellar dislocations and for training reduction techniques. To assess the realism of the joint models and their suitability for use in training of reduction techniques, the models were implied as an integral part of an instructional course on reducing joint dislocations. Methods: Each participant was given a two-part questionnaire mainly based on a ten-point Likert scale. Anchoring points were 1-2 (very poor), 3-4 (poor), 5-6 (average), 7-8 (good) and 9-10 (excellent). Questions concerned the subjective assessment of individual experience with joint dislocations as well as preferred methods and the detailed evaluation of the three adjustable kinematic joint models. Results: All 80 participants answered the questionnaire. They had no experience with reducing dislocations of a shoulder in 35%, of an elbow in 77% and of a patella in 78%. 42% named the Hippocrates method as their preferred method for reducing anterior shoulder dislocations. The models were rated as very helpful (9,7 ± 0,7 of 10 points) for understanding the mechanisms of dislocations and as suitable for training of reducing a shoulder (8,6 ± 1,6 points), an elbow (8,9 ± 1,2) or a patella (9,1 ± 1,2) dislocation. After the course 49 physicians (74%) now preferred the demonstrated modified scapular manipulation technique for reducing shoulder dislocations in the future. Conclusions: Adjustable kinematic joint models are very helpful to support understanding the mechanisms of shoulder, elbow and patellar dislocations and for training reduction techniques.

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IDEAL ALIGNMENT OF HIGH TIBIAL OSTEOTOMY IN LATERAL DISCOID MENISCUS PATIENTS: OUR EXPERIENCE

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Introduction: Most authors consider discoid Meniscus as an anatomical variant with an increased propensity for tearing by mechanical stresses and hypermobility from meniscocapsular separation. High tibial osteotomy results in shift of weight bearing axis on lateral compartment putting increased load on discoid meniscus and hence a higher chances of tear. This may accelerate the progression of osteo-arthritis in lateral compartment. We therefore carried out the study with a hypothesis that a high tibial osteotomy would accelerate the progression of lateral compartment osteo-arthritis in patients with complete discoid meniscus. Materials and methods: The records of all patients with high tibial osteotomy from 2008 to 2012 were evaluated for complete lateral discoid meniscus. Patient's records were studied for demographic data, clinical examination records and pre-operative knee functional scores and radiological scores and were compared with postoperative data.Results: Records of 674 patients, who underwent a High Tibial Osteotomy from 2008 to 2012, were analyzed. 21 of these patients fulfilled the inclusion criterion and had a complete lateral discoid meniscus. 5 patients showed lateral compartment deterioration. Post operative mechanical axis showed to be most important criterion affecting the prognosis.Conclusion: A carefully controlled valgus HTO with 1-2 degree of valgus mechanical axis instead of normally described 'Fujisawa point' may give benefit to younger patients with discoid meniscus by unloading medial compartment without undue risk of deterioration of lateral compartment

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Abstract no.: 42909

MINIMUM 6-YEAR FOLLOW-UP OF ARTHROSCOPIC MEDIAL REEFING FOR PATELLAR INSTABILITY

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Introduction: Purpose of this study was to evaluate the results of arthroscopic medial reefing for patellar instability at long term. Materials and Methods: 15 patients (16 knees) with patellar instability were consecutively treated by arthroscopic medial reefing between 2005- 2010. At final follow-up 11 patients (12 knees) were available to evaluate. Average age was 18,6 (range, 12-37 years). Average follow-up was 90 months (range, 71-115). History of patellar dislocation episode was reported by all patients. Arthroscopic medial reefing was applied through three standard portals. At least 3 sutures were tied according to medial laxity. Post-operatively all patients were allowed to bear weight on the operated leg immediately and full knee flexion was allowed by the third week. At last follow-up patients were evaluated according to the Tegner and Lysholm scales. Paired t test was used to detect the statistical differences and $p<0.05$ was considered significant. Results: Two patients reported re-dislocations after the operation. Re-dislocation rate was 16.6% (2 in 12 knees). In general, patients reported significant improvement in pain, swelling, crepitus, and physical activity. The most common complaint was the anterior knee pain. The average pre and post-operative Tegner scores were 3.66 and 4.0, respectively. The average preoperative Lysholm score was 72 and postoperatively improved to 87.8 ($p=0.017$). Discussion: Arthroscopic medial reefing for patellar instability is a viable option for young patients with ligamentous insufficiency without major bony abnormalities. The most significant advantages are that the epiphyseal plates are protected in young patients and no skin incision applied.

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Abstract no.: 45483
WHICH COLLES' FRACTURE REQUIRES AN OPERATION?

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Introduction: Many classification systems for distal radius fractures exist (e.g. AO, Fernandez, Frykman). However, their use in determining whether to operate or not, as well as their inter-rater agreement are limited. Therefore, efforts have been made to unify the radiologic criteria for acceptable closed reduction of closed, low-energy Colles' fractures of the distal radius. National guidelines from 2015 warrant operation, if one of the following five criteria is met after closed reduction: dorsal tilt >10degrees; ulnar variance >2mm; intra-articular step-off >2mm; incongruence of the distal radioulnar joint (DRUJ); substantial comminution of the dorsal cortex. The aim of the study was to determine the inter-rater agreement. Methods: A trauma consultant and a medical officer independently rated the radiographs of 176 cases of Colles' fractures after closed reduction according to the five criteria. All cases were operated at our institution between February 2009 and June 2013. Kappa statistics were applied. Results: The inter-rater agreement regarding acceptable reduction (yes/no) was "poor", because in only 49/176 cases the raters agreed on all five criteria. The agreement was best for dorsal tilt >10 degrees, 154/176; followed by intra-articular step-off >2mm, 149/176; incongruence of DRUJ, 144/176; ulnar variance >2mm, 127/176; and substantial dorsal comminution, 90/176. Discussion: The decision making whether a Colles' fracture should be operated remains difficult. While the national guidelines stipulate 3 objectively measurable and 2 subjective criteria, the overall inter-rater agreement was "poor". Careful consideration is necessary, when determining which Colles' fracture needs operation.

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OUTCOME OF ONLY POSTERIOR FIXATIONS OF DISPLACED ACETABULUM FRACTURES

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Introduction: Treatment of acetabulum fractures have evolved over time. Presently column specific fixation yields the best outcome however it is technically demanding because of the complex pelvic anatomy and difficulty in surgical access. In the past we have treated many patients with only posterior fixation. Method: We have retrospectively analysed 86 patients treated with only posterior fixations from January 2011 to December 2013. Outcome evaluation was done with Postel Merle d'Aubigne functional score and Matta's radiological scoring system. Influence of age, associated injuries, fracture pattern, delay in surgery, quality of reduction and head roof relationship has been analysed. Results: In our series, 58.4% of fractures needing only posterior fixation had excellent-good outcome while only 23% of complex fractures with associated anterior column involvement but treated with only posterior fixation had excellent-good outcome. Anatomical reduction was achieved in 70% of fractures with only posterior component while only 23% of complex fractures were reduced anatomically with posterior fixation.Mean functional score was found to be low in patients with acetabular roof impaction (12.97, p =0.024), femoral head injury (13.30, p = 0.0056) and intra-articular fragments (13.37, p = 0.01).Conclusion: Increase in age, presence of associated injuries, acetabular roof impaction, femoral head injury and intra-articular has negative impact on outcome. Complex fractures treated with only posterior fixation resulted in unsatisfactory reduction and higher percentage of fair-poor outcome hence column specific fixation with both anterior and posterior approaches based on fracture pattern must be the choice of management of acetabulum fractures.

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Abstract no.: 45200

USE OF FIBULAR STRUT GRAFT WITH LOCK PLATE IN UNSTABLE FRACTURE PROXIMAL HUMERUS

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aim of study to evaluate clinical and radiological outcome of locking plate with fibular autogenous strut graft in unstable fracture humerus cases .use of fibular strut graft has been proved in biomechanical studies useful with lock pltes to prevent varus collapse and screw cut out at aurticular surface Methods we prospectively assessed outcome in 11 case of unstable fractures with distrupted medial column, gross vurus head deformity treated with lock plate and fibular strut graft. average age 51yr post op assessment clinically radiologically vas score ,dash score and complications RESULT all united well no implant failure only one superficial infection average follow up 09 months CONCLUSION use of fibular strut graft with lcp is safe and promising technique in unstable upper humerus cases especially medial cortical comminution in neck humerus cases.

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Abstract no.: 45025

MINIMAL INVASIVE PERCUTANEOUS PLATE OSTEOSYNTHESIS (MIPPO) VS. OPEN PLATING IN SUPERIOR PLATING OF MIDSHAFT CLAVICLE FRACTURES; A PROSPECTIVE RANDOMIZED TRIAL

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Aim: Plate osteosynthesis is the choice of treatment in displaced midshaft fractures of adulthood. In this prospective randomized study we aimed to compare the outcomes of minimal invasive percutaneous plate osteosynthesis (MIPPO) with conventional open plating of midshaft clavicular fractures with superior plating. Material-Method: Between November 2010 and August 2013, 52 adult patients (age 18-55) having AO type 15-B2.1-3 and 15-B3.1-3 fractures with more than 20 mm. shortening were randomly assigned to be treated either with MIPPO (n=22, mean age: 32.32±8.22) or conventional plating (n=30, mean age: 34.70±9.37). Operative data included operative time, fluoroscopy time, hospital stay and complications. All patients were evaluated periodically, both radiographically and functionally. Radiological evaluation was performed every three months following surgery and functional evaluation was made at the last visit (Mean follow up until final visit was 14.57±6.39). Functional evaluation was performed using Quick Disability of the Arm, Shoulder and Hand (DASH) scores and self- reported morbidity. Results: Demographic properties were similar between groups. As expected, both operative time and fluoroscopy time was significantly longer in MIPPO group (approx. 6.5 minutes longer operation and 12 seconds longer fluoroscopy time). Time for radiographic union was significantly shorter in MIPPO group (13.64±2.98 weeks), compared to conventional plating group (16.50±4.52 weeks) [p=0.01]. Differences in remainder of operative and follow up parameters did not reach statistical significance. Conclusion: Despite prolonged operative and fluoroscopy time, MIPPO technique for midshaft fractures of clavicle allows for a shorter recovery compared to conventional open plating.

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BIPOLAR CLAVICLE FRACTURE; A REVIEW OF THE MANAGEMENT OF THIS COMPLEX INJURY THROUGH A CASE ANALYSIS

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Introduction: Clavicle fractures are common, making up 5% of all fractures, with the majority, up to 82%, being mid-shaft. Traumatic bipolar clavicle fractures, involving the medial and lateral poles are extremely rare. A review of the fixation methods and limitations is vital to help guide surgical management of these precarious injuries. Method: We conducted a case review in conjunction with a critical appraisal of available literature through a structured search of the Pubmed and Medline databases. Review: A 43-year-old chef presented after a direct blow to his right shoulder, causing a significant deformity of his shoulder girdle. Imaging confirmed a medial and lateral bipolar fracture of his right clavicle, with comminuted fracture of the medial third that extended into the sternoclavicular joint. This provided difficulty in fixation, a technique of fibrewire tension band across the sternoclavicular joint, with a left lateral clavicle plate used as a neutralisation plate was chosen. The lateral fracture with fixed with an anterior plate, overlapping to prevent a point of stress. This technique restored the shoulder girdle and allowed recovery of function. Discussion: There are a small number of case reports published, but without the complex nature of the medial fracture presented. The use of a lateral third plate or tension band sutures has been proposed in the literature, however with a comminuted medial fracture neither alone provides adequate fixation, in this situation a combination can be utilised. Thus providing a technique for fixation of these complex injuries, where standard techniques are not appropriate.

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RADIAL HEAD FRACTURE: PROSTHETIC REPLACEMENT OUTCOME

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Introduction: Radial head fracture treatment is difficult and controversial the aim of this study was to evaluate the results of treatment of radial head fracture using radial head prosthesis. Material and methods: we operated on 20 patients who had comminuted non-fixable Mason type III and Mason type VI radial head fractures. Prosthetic replacement and repair of LCL, LUCL injuries was done then short elbow immobilization in a plaster splint followed by physiotherapy. Clinical and radiological outcome assessment with the use of Mayo score on four parameters (pain, motion, stability and function) was calculated. The mean follow up was for 17 months (range 10 – 24 months). Results: Sixteen patients (80 %) excellent, two good (10 %) ,, one fair (5%) , and one poor (5 %) ,. The average cumulative Mayo score was 93.5/100. No patients developed re-dislocation post-surgically. Radiological results showed no case had secondary post-traumatic osteo-arthrosis or prosthesis breakage or loosening. Conclusion: prosthetic radial head replacement can achieve elbow stability, functional range of motion and minimal complications

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PERIPROSTHETIC FEMORAL FRACTURES - TREATMENT PARADIGM SHIFT?

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Objectives Aim of our study was to design a technique of less invasive intramedullary fixation in periprosthetic fractures and deformities of the femur to provide primary stability of the stem and the femur. Methods Since 2007, fixator-assisted internal fixation was used in the treatment of 71 consecutive cases of femoral periprosthetic fractures: Vancouver B1 - 23 cases (8 cemented), Vancouver B2 - 24 (2 cemented), B3 - 17 (3 cemented), C- 7 (2 cemented). Simplified Ilizarov frames were used to gain alignment and length acutely in 63 cases or gradually (5 - 14 days) in 8 cases. In 29/41 case (5 cemented) of B2/B3 fractures femoral stems were subsided 10 mm and more. Results Frame application allowed to restore length and alignment of the segment. It appeared attainable to correct the subsided stem position relatively to the major trochanter and the acetabulum in all 29 cases. 64 patients (90%) were available for follow up in 1 year. 62 healed (4 after secondary procedures). Two have asymptomatic nonunion. There were no signs of stem loosening revealed in all cases (24) of subsided non-cemented stems that were reduced. Conclusions The current approach with plating in stable stems and revision in loose ones can be replaced by the introduced approach in vast majority of cases. In case of loose displaced stems the presented approach provides not only strong primary fixation but also reduction of subsided stem along with restoration of limb length and alignment.

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INITIAL RADIOGRAPHIC FINDINGS OF INTERTROCHANTERIC FRACTURES THAT MAY HERALD UNSUCCESSFUL CLOSED REDUCTION

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METHODS: A retrospective analysis of 101 intertrochanteric fractures was done at our institution between 2008 and 2011. The fracture pattern of these patients was classified using the A.O. fracture classification system. It was found that according to the reduction techniques used to achieve acceptable stable reduction, two main methods were used and thereby the division of patient groups was done accordingly as 1.Closed reduction and 2.Percutaneous Reduction. The purpose of this study was to find out the category of patients who would require a closed reduction or a percutaneous reduction, based on the fracture morphology at their foremost presentation in the emergency. CONCLUSION: Role of percutaneous intervention was increasing in frequency as the severity of the fracture pattern increased from 31A to 31C and acceptable reduction was not possible with the conventional closed reduction techniques, thereby providing the surgeon with a more definitive idea and anticipate an alternative approach to reducing and fixing the fracture.

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MINIMAL-INVASIVE POSTERIOR APPROACH IN THE TREATMENT FRACTURES OF THE ACETABULUM: THE ITALIAN EXPERIENCE, CONSIDERATIONS AND INDICATION AFTER 10 YEARS

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Introduction: Kocher–Langenbeck posterior approach provides access to the posterior wall and posterior column of the acetabulum. The risk encountered by using this surgical approach is to damage the superior gluteal artery and nerve. Our approach can be thought as the distal part of the typical Kocher–Langenbeck approach (about 12–18 cm).The purpose of this article is to report the advantages of a less invasive surgical approach in this kind of surgery, which gives the same results in terms of fracture healing as a more invasive surgery. Methods: Between 2004 and 2014 we treated 54 patient (range, 22–64 years) with posterior wall fracture or transverse fracture. The fractures were classified according to Letournel classification. All patients were treated by the same surgeon (R.S.). Main Outcome Measure: Clinical and radiological. Results: The result for clinical outcome according to Merle d'Aubigne and Postel we obtained (68%) patients classified as excellent, very good (22%) and good (10%). The latest follow-upX-rays were were excellent in (68%), good in (32%). Conclusions: The classic Kocher–Langenbeck approach is implicated in the formation of HO after acetabular fracture surgery For this reason many authors use to give their patients Indomethacin to prevent such a complication In this work only 50%patients received Indomethacin as prophylaxis. One case we observed a massive ossification (Brooker's class 3), without limiting of motion. This patient had an important head trauma associated and rested in coma in ICU for many weeks before and after surgical treatment.

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Abstract no.: 43354

POLYTRAUMA TEAM TRAINING: SIMULATION TEAM TRAINING LEADS TO IMPROVES TEAMWORK AND EFFECTIVENESS OF THE PRIMARY SURVEY

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Introduction: Trauma is the leading cause of death below the age of 40 in Europe. The initial management of trauma patients is dependent on the efficiency of the trauma team. In many cases the cause of errors are not medical-technical based but involve factors like communication, co-ordination and teamwork. They can be summarized as non-technical skills. The goal of our project is to establish advanced simulation training aimed at medical professionals involved in polytrauma care. This is characterized by a strong focus on team training and scenario-based training with advanced simulation. Materials and Methods: The medical professionals underwent a one-day simulation training involving 8 simulation-based scenarios supplemented by 2 lectures and a team resource management workshop. The first and last scenario were video-recorded and analyzed for changes in team structure and communication. Additionally the completeness of the primary survey and emergency treatment (intubation, release of tension pneumothorax, application of pelvic binder) were registered. Results: Results showed a significant improvement in communication between the team leader and trauma team members, coordination and teamwork. Both, completeness (75 vs. 71%) and duration (381 vs. 560 sec) of the primary survey improved. Additionally, there was a significant improvement in time until life-saving procedures were initiated (reduction between 9-40%). Conclusion: Interdisciplinary polytrauma simulation team training is an effective method to teach non-technical skills in polytrauma care.

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COMPARISON OF POSTERIOR BUTTRESS PLATE, A-P SCREW AND P-A SCREW FOR FIXATION OF POSTERIOR MALLEOLAR FRAGMENT IN SURGICAL FIXATION OF TRIMALLEOLAR FRACTURES

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Aim: There are several options for fixation of posterior malleolar fragment during trimalleolar fractures. Here we aimed to compare the radiological and functional results of posterior buttress plate, A-P screw and P-A screw fixation of posterior malleolar fragment during surgical fixation of trimalleolar fractures. Study design. Multicenter- retrospective Materials- method: This study was conducted by combining postoperative follow up data of three university hospitals, about surgically treated trimalleolar fracture cases requiring posterior malleolar fixation between 2009 and 2015. Patient demographics, size of posterior malleolar fragment were collected. Clinical evaluation was performed by AOFAS score, VAS scores and ROM measurements compared to uninvolved side. Radiological follow up was made by evaluation of fracture site for gap or step and presence of arthritis according to criteria defined by Bargon et al. Results: Out of 102 surgically fixed posterior malleolar fractures dataset, 67 patients attending final follow up visit for functional evaluation were included in the study. Out of 67 cases 20 cases had A-P screw, 13 cases had P-A screw and 34 cases had posterior buttress plate fixation. Follow-up period were 16.2 months, 13.8 months and 13.1 months respectively. Patient demographics were similar. AOFAS scores of PA screw and posterior plate were significantly higher than AP group (AP: 86.45 , PA:94.84 and Plate:94.85)[$p<0.05$]. No significant difference could be demonstrated regarding range-of-motion difference and radiological outcome. Conclusion: PA screw and Posterior buttress plate for posterior malleolar fixation revealed similar results, but better AOFAS scores than AP screw.

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ASSESSMENT OF 3 MONTHS POST-OPERATIVE MORTALITY IN PATIENTS UNDERGOING SURGICAL FIXATION OF HIP FRACTURES WITH NOTTINGHAM HIP FRACTURE SCORE

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Background: Surgical repair of hip fractures has been associated with high postoperative mortality. Accurate prediction of high-risk patients is important for planning of care, decision making, communication with patient and the family members, furthermore aiding to clinical management, decisions making and resource allocation. NHFS comprises of seven independent predictors of mortality that have been incorporated into a risk score: {age (66 – 85 and ≥86 year); sex (male); number of co-morbidities (≥2), admission mini-mental test score (≤6 out of 10), admission hemoglobin (≤10 g /dl, living with immediate family member; and the presence of malignancy}, has been used as predictor of 1 year postoperative mortality after hip fracture surgery. We hypothesize that NHFS can predict early three months postoperative mortality, aiding in identification of high risk patients, giving them maximum quality care and attention to minimize future untoward outcome. Methods: NHFS was prospectively calculated for 88 patients who underwent hip fracture surgery. Results: Overall mortality was 22% at 3 months. NHFS of ≤4 was considered low risk and a score of ≥5 high risk. High NHFS is associated with threefold increase mortality in patients undergoing surgical fixation of hip fractures and comparable with 3 months postoperative mortality. Our outcome of three month postoperative mortality is comparable with the NHFS ≥5. Conclusions: NHFS can be used to predict the risk of 3 months postoperative mortality after hip fracture surgery. Keywords: Intertrochanteric fracture, Notthingum hip fracture score, dynamic hip screw, Austin Moore hemiarthoplasty

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THE TECHNICAL REFINEMENT AND CLASSIFICATION OF THE LOWER EXTREMITY DEGLOVING INJURIES

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BACKGROUND: Degloving injuries are severe and frequently underestimated lesions, which are associated with a high morbidity and mortality if mismanaged. The treatment of such patients still varies, clinical indicators for its prognosis are scarce, and some technical protocols are also controversial. METHODS: Between 2002 and 2011, 102 patients with skin avulsion of 129 lower extremities were treated with immediate full-thickness skin graft following a protocol of radical debridement. The full-thickness skin grafts were processed with sharp scalpels in situ. They were further secured with multiple sutures after repositioning to improve skin graft take. Outcomes were evaluated based on different patterns and age groups. RESULTS: Three patterns of injury, that is, a purely degloving injury (Pattern 1), a degloving injury with the involvement of deep soft tissues (Pattern 2), and a degloving injury with long-bone fractures (Pattern 3), were revealed. Among the three patterns, much higher primary healing rates were observed in Patterns 1 and 2. Younger patients in Pattern 3 achieved a higher primary healing rate than the old ones, whereas no differences of primary healing rate regarding different age groups were noted in Patterns 1 and 2. CONCLUSION: The degloving injuries of the lower extremities can be generally divided into three patterns. The management with immediate full-thickness skin grafting following the protocol of radical debridement is feasible. Age has little impact on the skin graft take except for severe cases (Pattern 3) in which old age is an indicator of unfavorable prognosis and special attention is required.